THE IRON TRADE REVIEW

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GETTING AWAY

FROM LOWEST PRICES ON PIG IRON AND FINISHED PRODUCTS.

Large Volume of Business Causes Moderate Increase in Firmness—Many Reservations of Iron Ore.

Increased activity in both pig iron and finished lines, with the exception of rails, is being well maintained throughout the country, and there is less disposition on the part of the mills and furnaces to quote the very low prices that have been prevailing. The effect of large sales made during the past two weeks is being shown in the increased capacity in operation, especially in the Chicago and Pittsburg districts. The Carnegie Steel Co.'s bar, plate and shape mills are working 80 per cent, and the tonnage in plates and shapes received last week was very heavy. The Jones & Laughlin Steel Co. is running its furnaces and steel works at full capacity, and the steel works of the Republic Iron & Steel Co. and other companies are very busy. The quarterly report of the Steel Corporation is considered very favorable, particularly the earnings for March, which were on a basis of low prices.

Iron Ore Reservations

Some sales of Lake Superior iron ore have been made, with the guarantee that buyers will be given the benefit of any reduction in price that may be announced later. For the most part, however, ore transactions have been confined to reservations amounting to about 1,000,000 tons, without contracts being actually signed. It does not seem probable that lower prices will prevail. Owing to the opposition of labor unions to the open shop principle on the lakes, vessels are being started earlier than would otherwise have been done, with the expectation that the labor controversy will be settled before there shall be any real demand for heavy shipments of ore. Some local ores in the east are being sold at low prices.

Pig Iron Conditions

The Tennessee Coal, Iron & Railroad Co. has withdrawn its $11 price on pig iron, and has recently sold 140,000 tons, the later sales being at $11.50, which is now the prevailing price for the southern product. In the north, pig iron prices are also somewhat firmer. Sales include 24,000 tons for a Massillon cast iron pipe concern; 15,000 tons of malleable in eastern territory; 10,000 tons of basic sold by a northern Ohio furnace, and 13,500 tons of foundry and malleable grades taken by the International Harvester Co. Doubt is expressed in some quarters as to whether the melt has so increased as to justify all the buying of pig iron recently done.

Structural Material

Sales of structural material for April are estimated at 200,000 tons, of which about 130,000 tons went to independent companies, and 70,000 tons to the American Bridge Co., including the 15,000 tons for the Curtis building in Philadelphia. Among the contracts awarded are: 5,000 tons for Cuban bridges, and 2,500 tons for the Buffalo, Rochester & Pittsburg railroad to the Pennsylvania Steel Co.; 6,000 tons for Erie railroad bridges, divided among three companies; 1,500 tons for Chicago & Alton bridges, to the American Bridge Co.; 1,100 tons for Pennsylvania track elevations for Chicago, to the Riter-Conley Construction Co.; 2,600 tons to Milliken Bros., for transmission towers in Montana; 2,000 tons for the Steger building, Chicago; 1,600 tons for the Boston & Albany pier shed, and 6,300 tons for the Denison-Harvard viaduct, Cleveland, awarded to the Lackawanna Steel Co. The award of the Cleveland viaduct contract is being contested in the courts by the McClintic-Marshall Construction Co., whose bid was 30 cents per ton lower than that of the King Bridge Co., to which the general contract was awarded.

Steel Bars

On steel bars a disposition is being shown by the mills not to make the very low quotations which have recently prevailed, and buyers are more anxious than sellers to make contracts for extended delivery. The 1.10c quotation Pittsburg is rapidly disappearing, and 1.15c is now the prevailing quotation. On wire products, the official schedule of the principal producer is being freely shaded, the cutting on nails and wire usually being about $2 per ton.

Railroad Buying

The Steel Corporation was the low bidder on 50,000 tons of rails for Argentina, but the business has not been placed. The Carnegie Steel Co. has sold to the Pennsylvania railroad 5,400 tons of rails, and the Illinois Steel Co. has sold 5,000 tons to the Northern Pacific and 8,000 to the Chesapeake & Ohio. The new rail mill at Gary will roll 15,000 tons for a railroad in Montana. The Chesapeake & Ohio has awarded a large contract for locomotives; the Pennsylvania has ordered 44 locomotives, and the New York Central 13. Low prices are still being made on billets in the Chicago district. The old material market shows considerable improvement.

THE WEEK IN IRON CENTERS

PITTSBURG.

Heavier Sales Shown in Increased Mill Activity—Less Cutting.

Office of THE IRON TRADE REVIEW,
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With the exception of rails, all the principal finished lines of iron and steel are making progress and are lending to the general market an appearance of renewed activity. The condition of the larger mills at present is probably the best at any time during the past 18 months, as increased operations are being well sustained and in some products, orders are actually in excess of current output. Some of the interests being so benefited are venturing the expression of a belief that the turn toward normal trade has been made and that a gradual advance during the remainder of the year is likely to follow.

That the accumulating tonnage is reaching the point where it is suffusing greater strength and confidence is shown by the firmer attitude of some makers toward the lowest prices prevailing. In steel bars, the 1.10c base, which is still quite freely quoted in some quarters, is not being so aggressively met and, at this level, the market is more completely in the hands of those interests which are willing to offer such inducements. Steel bars have been one of the best lines of the whole market as to specifications received, but plates and shapes are also making a favorable record in point of tonnage being closed.

In wire products, conditions more closely approaching a genuine open market are prevailing and the official price schedule, which is becoming more and more nominal, is being generally underquoted. The leading maker now appears to be more aggressively competing against the independent companies which grasped the opportunity to fill their order books at concessions, while former prices were being maintained for the benefit of the jobbers and the spring hardware trade. Shading in some grades of sheets is quite general and in hoops there is sharp figuring for orders.

The increased activity in pig iron is continuing, but the heavy stocks in northern furnace yards are holding going business at bottom quotations. There is a greater buying of coke by furnaces covering for their last half requirements at sacrifice prices. Old material is in a stationary state awaiting the time when the mills will be able to offer higher figures for their melting stock.

Pig Iron.—The market is showing the greatest life of a number of months and inquiries are plentiful. Melters are most strongly interested in third quarter and last half requirements and are getting some low prices on such deliveries, which are only slightly in advance of the depressed prompt quotations now in force, especially in foundry iron. The Pittsburg district is producing an increased inquiry in small lots, but large-sized transactions are the exception. The main buying support of the market is coming from other consuming centers.

The Massillon interest, which was out for a large block of Nos. 2, 3 and 4 iron, purchased 24,000 tons, of which 16,000 tons was northern and 8,000 southern, for delivery over the six months beginning May 1. The prices were $14 valley for the northern No. 2, and $11 Birmingham on the southern. The American Steel Foundries closed in the week for 10,000 tons of basic for last half delivery, the contract going to a northern Ohio furnace. Valley interests were offered and refused $14 furnace on this lot. Other basic deals are pending.

Among the new inquiries, a local buyer is in the market for 2,000 tons of foundry of different grades, 500 tons of Bessemer and 500 tons of low phosphorus iron for last half shipment. A Toledo malleable interest is asking prices on 7,000 tons of this grade for last half. Inquiries aggregating about 3,500 tons of low phosphorus are before sellers. The Bessemer market is very dull. Considerable business is pending in malleable, on which the market holds from $14 to $14.25 valley.

Small local sales made this week include 200 tons of Bessemer for May and June at $14.75 valley, and 300 tons of basic for prompt delivery at $14 valley. Persistent efforts have been made by basic users to shade $14 valley, but they have been unsuccessful except in a few instances where practically resale iron was involved.

Activity in southern iron is not so marked as some of the furnaces, having booked large tonnages at $11, have advanced their asking prices and have practically left the market to the low sellers. A tendency to advance is shown in this market, as stocks on hand are not heavy. On prompt and second quarter shipment on northern iron, we quote as follows:

Bessemer, valley	$14.75 to 15.00
Bessemer, Pittsburg	15.65 to 15.90
No. 2 foundry, Pittsburg	14.90 to 15.15
Gray forge, Pittsburg	14.40 to 14.65
Basic, valley	14.00 to 14.25
Basic, Pittsburg	14.90 to 15.15

Ferro-Alloys.—The 50 per cent ferro silicon market looks stronger, as some domestic makers which have been low sellers recently are having difficulty in making deliveries. A disposition to discount the proposed decrease in the duty on ferro manganese is holding down prices on future material. Local users are well covered and demand is light. Some inquiry for the lower grades of ferro-silicon is current. We quote 80 per cent ferro-manganese at $41 to $42 seaboard with a freight rate of $1.95 to Pittsburg.

Fifty per cent ferro-silicon is quoted at $58 to $59 Pittsburg on forward deliveries; domestic, 12 per cent, $26; 11 per cent, $25; 10 per cent, $24, Pittsburg.

Plates.—Heavy specifications in plates, principally structural plates, are being received, and the important mills in this district are running at 80 per cent of capacity or better. The Anaconda Copper Co. is planning the construction of a large riveted pipe line in Montana which will require about 10,000 tons of plates. The Carnegie Steel Co. has taken 700 tons of plates and other material for a new lake passenger steamer which will be constructed by the American Ship Building Co. The 1.30c price on plates is subject to considerable shading, especially in the eastern districts, and concessions down to 1.20c base have been made. Outside of structural plates, the market is not especially active. We quote the present plate market as follows:

Tank plate, ¼-inch thick, 6¼ to 100 inches, 1.20c to 1.30c, f. o. b. mill. Extras are as follows per 100 pounds: Boiler and flange steel plate, 0.10c; A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches, excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in widths over 100 inches up to 115 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ¼-inch to and including 3/16-inch plate on thin edges, 0.10c; under 3/16 to and including No. 9, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

Sheets.—While aggregate sheet orders are probably not so heavy at present as during the several weeks following the new low prices, there is a consistent patronage which is keeping mill activity well supported. Concessions from the minimum prices quoted are being granted by some makers in plain galvanized and in corrugated roofing, and is more marked in the latter. Black sheets are more regular. The inquiry is out in the local market for about 160 tons of corrugated galvanized steel sheets for mill construction in this district. The independent mills of the country are working at from 75 to 80 per cent of capacity, while those of the principal producer are operating at about 60 per cent, but the latter has been shipping considerable material from stock. We quote present minimum prices which are subject to the shading stated, as follows:

Blue annealed sheets, Nos. 10 and heavier, 1.60c; Nos. 11 and 12, 1.65c; Nos. 13 and 14, 1.70c; Nos. 15 and 16, 1.80c; box annealed sheets, Nos. 10 to 12, 1.85c; Nos. 13 and 14, 1.90c; Nos. 15 and 16, 1.95c; Nos. 17 to 21, 2c; Nos. 22 to 24, 2.05c; Nos. 25 and 26, 2.10c; No. 27, 2.15c; No. 28, 2.20c; No. 29, 2.25c; No. 30, 2.35c; galvanized sheets, Nos. 13 and 14, 2.30c; Nos. 15 and 16, 2.40c; Nos. 17 to 21, 2.50c; Nos. 22 to 24, 2.65c; Nos. 25 and 26, 2.85c; No. 27, 3.05c; No. 28, 3.25c; No. 29, 3.35c; No. 30, 3.60c; painted roofing sheets, $1.55 per square for No. 28 gage, 2½-inch corrugation, and galvanized roofing sheets, $2.80 per square for No. 28 gage, 2½-inch corrugation.

Tin Plate.—A very satisfactory tonnage is being regularly ordered and shipped from the mills. The can makers are specifying heavily in anticipation of bountiful fruit and vegetable crops, and other consumers are steadily drawing against their contracts. The movement of tin plates to the western fish packers is scaling down and is nearing its end. While some contracts after July 1 have been taken, makers are not anxious to take on future commitments at present prices. The largest interest is running 94 per cent of its operative capacity and the independents generally are working at from 85 to 90 per cent, although many of these plants are running full. We quote the present market which is well sustained, as follows:

Coke tin plate, 100-pound basis, 14 x 20, $3.45 f. o. b. mill Pittsburg district and $3.40 in large lots. Terms, 30 days, less 2 per cent for cash in 10 days.

Rails and Track Material.—The Pennsylvania lines east have awarded the Carnegie Steel Co. a contract for 5,400 tons of standard sections, which is for early shipment. A very good demand for light rails is noted, the bookings of the Carnegie Steel Co. last week being 2,200 tons. Southern lumber companies have been among the principal buyers. Light rail prices are quite irregular owing to the competition between the mills rolling from billets and those rerolling from old rails, and the usual differentials, except in the very light weights, are not being observed. On account of the reduced prices of rerolling rails, the rerollers are enabled to make very low quotations on their products. There is a strong trade in splice bars and other track fastenings. The spike market is considerably disturbed by the low prices which have been brought out by the activity of the hot and cold makers in seeking orders. A railroad, however, paid highest prices for a lot of 2,000 kegs of standard spikes. On present specifications on Bessemer rails we quote as follows, the base price for open-hearth rails being $30 mill:

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; 8-pound, $32; 12-pound, $28; 16- to 45 pounds, $22 to $23; angle splice bars for standard sections, 1.50c. Standard spikes, 1.60c to 1.70c Pittsburg; hand spikes, 1.60c to 1.70c Pittsburg.

Steel.—Long term contracts in semi-finished steel are being drawn against very liberally by consumers. There is not a great deal of new business being offered however, and current reports of concessions are confined largely to material for quick shipment. Users of slabs report their ability to pick up quantities of this material at $2 under the $23 market, and there are reports that billets and sheet bars may also be obtained at shaded figures.

Bessemer and open-hearth 4 x 4 billets with 0.25 carbon and less are quoted at $23 Pittsburg, with the usual extras for size and analysis, and forging billets at $25 Pittsburg. Sheet and tin bars are $25 Pittsburg. Some steel makers are still willing to divide the freight within the $1 limit, making the price in the immediate Pittsburg territory $23.50 delivered on billets and $25.50 delivered on sheet bars.

Hoops and Bands.—Attractive business in hoops is going at concessions, as competition for business is keen. While in some cases the 1.60c price is obtained, the current market is about 1.50c, and lower prices are reported. On account of the unsatisfactory condition of the market, some interests which have recently become factors in the hoop trade are not running their mills. The cotton tie movement continues. We quote the present hoop market as follows:

Hoops in carload lots, 1.50c to 1.60c, in less than carload lots, 1.60c to 1.70c; bands, 1.15c to 1.20c, base half extras as per standard steel.

Merchant Bars.—The 1.10c base price on steel bars continues to be quoted by one of the leading makers, and some contracts have been placed on this basis for deliveries up to the end of the present year. After having met this competition for the past 10 days, some of the other important interests have withdrawn from the contest for orders and are now more consistently quoting 1.15c Pittsburg on prompt and future shipment. A heavy tonnage in steel bar specifications is steadily coming to the mills and operations are very active. The bar mills of the Carnegie Steel Co. are running 80 per cent full while the steel works capacity of both the Republic Iron & Steel Co. and the Jones & Laughlin Steel Co. is active. The larger implement consumers are not yet under contract. The bar iron demand shows a little improvement, but prices continue low. The shafting discounts of 60 and 55 are being shaded from one to two points. Manufacturers of cold rolled strip steel have extended present prices for delivery to Jan. 1. These quotations were originally fixed to apply to July 1. We quote present prices as follows:

Common iron bars, 1.30c to 1.35c Pittsburg; Bessemer and open-hearth steel bars, 1.10c to 1.15c; plow and cultivator, 1.10c to 1.15c; channels, angles, zees, tees, under 3-inch, 1.20c to 1.25c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds of a size, 0.30c advance. Cold rolled and ground shafting, 60 per cent in carloads, and 55 per cent in less than carloads, delivered in base territory. Planished and machine straightened tire steel is 1.40c base; iron finished tire under 1½ by 1½ inches, 1.35c; both plus ½ extra on tire card; iron finished tire, 1½ by ½ and over, 1.20c, plus ½ extra on the steel bar card.

On cold rolled strip steel, width 1½ inches and wider, and 0.100 inch and thicker, we quite base prices for 100 pounds, $3.05 on hard, and $3.30 on soft.

Structural Material.—The dominant

factor in the structural situation continues that of low prices on fabricated and erected work, with accompanying concessions from the 1.30c price on plain material. The 1.25c price appears the most commonly quoted, but on very desirable business 1.20c has been done to the general fabricating trade. The inquiry continues quite fair. The American Bridge Co. has taken the steel for the new Curtis building, Philadelphia, which will require about 15,000 tons, and the Pennsylvania Steel Co. will furnish 2,500 tons for the Buffalo, Rochester & Pittsburg railroad to be used in bridge work. The McClintic-Marshall Construction Co. has been awarded 1,200 tons for the tube mill additions to the plant of the Youngstown Sheet & Tube Co. and 600 tons for a building at the New York state fair grounds, Syracuse. The Thompson-Sterritt Construction Co., New York, has been given the general contract for the new Second National Bank building in this city and the steel, about 2,000 tons, will be supplied by the Jones & Laughlin Steel Co. P. W. Finn has been made the general contractor for the new Wilkinsburg high school, 800 tons, but the steel has not yet been awarded. Julian Kennedy, Pittsburg, the engineer, is taking bids on the construction of the new plant of the recently organized Inter-Ocean Steel Co. at Chicago, which will require about 4,000 tons. Bids go in this week for the second time on the new West Penn hospital in this city, about 1,200 tons. A new independent tin mill at Holiday's Cove, W. Va., will take about 600 tons. We quote the present market on structural shapes as follows:

Beams and channels, 15-inch and under, 1.20c to 1.30c; over 15 inches, 1.30c to 1.40c; zees, 1.20c to 1.30c; tees, 1.25c to 1.35c; angles, from 3 to 6 inches, 1.20c to 1.30c; over 6 inches, 1.30c to 1.40c; universal and sheared plates, 6¼ inches wide and wider, 1.20c to 1.30c.

Merchant Pipe.—Reports of many large undertakings in oil and gas line construction continue to arise in the market, but as many of these are dependent upon financial and franchise considerations, some are likely never to reach the mills. Several new projects, however, are appearing in definite form. Standard Oil interests are planning a gas line from Weston, W. Va., to Baltimore, which will require 200 to 300 miles of pipe. The People's Natural Gas Co. is in the market for 60 miles of 14-inch pipe for a gas line to Altoona, Pa. A local gas company has closed for 10 miles of driving casing and tubing for the Ohio fields. Jobbers and distributors are ordering merchant pipe in very favorable quantities and the operations of the mills are being well sustained. Pipe makers regard present prices at absolute bottom and are unwilling to accept the engagements of consumers over the extended future, some of them declining to sell beyond actual May delivery. Steel prices are quite firm, but there is shading in iron pipe ranging up to $2 or more a ton. We quote the following official discounts on merchant pipe subject to five off to jobbers, while a few of the very large jobbers with mill connections are given an additional one point off:

	—Steel—		—Iron—	
	Black.	Galv.	Black.	Galv.
⅛ and ¼ inch.....	72	56	69	..
⅜ inch	73	59	70	56
½ inch	76	64	73	61
¾ to 6 inch.....	80	70	77	67
7 to 12 inch.....	75	60	72	57
PLUGGED AND REAMED.				
1 to 4 inch.....	78	68	75	65
EXTRA STRONG PLAIN ENDS.				
⅛ to ⅜ inch.....	65	53	62	50
½ to 4 inch.....	72	60	59	57
4½ to 8 inch.....	68	56	65	53
DOUBLE EXTRA STRONG PLAIN ENDS.				
½ to 8 inch.....	61	50	58	47

Boiler Tubes.—The merchant tube market is not active by reason of limited power construction. Locomotive building is also very moderate and the railroads are not heavy buyers. The demand for maintenance is only fair. Some shading of tube prices is being done. We quote the following official discounts on lap-welded steel boiler tubes to jobbers in carloads:

1 to 1½ inch	50
1¾ to 2¼ inch	62
2½ inch	64
2¾ to 5 inch	70
6 to 13 inch	62

2½ inch and smaller, over 18 feet, 10 per cent net extra.

2¾ inch and larger, over 22 feet, 10 per cent net extra.

To destinations east of the Mississippi river will be sold at delivered discount for carloads lowered by two points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburg.

We quote the following official discounts on charcoal iron tubes to jobbers:

1 to 1½ inch.....	45
1¾ to 2¼ inch.....	45
2½ inch	50
2¾ to 5 inch	57
6 to 13 inch	45

Wire Products.—The situation in wire products has taken on a greater resemblance to an open market, and prices in nails and wire are being freely named under the official schedule of the principal maker. There has been a disposition by some makers to protect the jobbers on wire prices until the spring hardware trade was well advanced, but now that this is under way, more aggressiveness is being shown in meeting the concessions which some independents have been prominent in making. The shading in prices in nails and wire usually amounts to about $2 a ton and applies to practically any delivery. Fencing quotations are firm, however. A good demand for material is present in the market, especially for shipment up to July 1. Prompt deliveries on barb wire and nails cannot be assured by some companies on account of their well-filled order books. The formal official prices of the leading interest, which are being shaded about $2 a ton, are as follows:

Wire nails, jobbers' carload lots, $1.95; retailers' carload lots, $2; painted barb wire, jobbers' carload lots, $2.10; retailers' carload lots, $2.15, with 30c for galvanizing; plain wire to jobbers in carloads, $1.80, and to retailers in carloads, $1.85.

Wire Rods.—Some business in open-hearth rods is current, and a number of contracts for delivery up to July 1 have been booked. Prices are somewhat irregular, and we quote $29 Pittsburg on Bessemer, and $30 Pittsburg on open-hearth rods.

Coke.—Furnace companies are directing their attention to their last half coke requirements and some large contracts are being closed at prices which are quite low, depending as to the pressure to sell upon the oven operator. Considerable negotiation is now under way. Except in cases where contracts for first half have been re-written to apply to later periods, the requirements of the furnaces over the last six months of the year are not well covered, and a buying movemnt is expected. Activity in foundry coke is steady and contracts are regularly closed. We quote spot furnace coke at from $1.50 to $1.75 ovens, and on contract from $1.60 to $1.85 ovens, according to grade. On first-class Connellsville foundry coke, the range is from $1.80 to $2 ovens for prompt shipment, and on contract from $1.90 to $2.25 ovens. The *Courier's* figures for the week ending April 17 show 22,108 ovens active with an output of 233,151 tons, compared with 22,068 active ovens and a production of 233,718 tons the previous week.

Old Material.—Hand to mouth buying is the rule in the old material market and dealers expect such conditions to prevail for sometime. With finished prices at their present level, the mills are declining to pay higher figures for old material and are closing on only their bare needs. The market is, however, quite firm and its tendency appears upward, as present demand is not being met by excessive offerings. Dealers holding stocks are drawing

against them cautiously in the hope of higher prices later. The Cambridge, O., re-rolling interest which has recently been buying re-rolling rails, has taken on several thousand tons at about $14.50 delivered. We quote gross tons delivered in the Pittsburg district as follows:

Heavy melting scrap, $13.75 to $14.25; re-rolling rails, $14.25 to $14.50; bundled sheet scrap, $11.25 to $11.75; iron axles, $18 to $19; old iron rails, $15 to $16; No. 1 wrought scrap, $13.25 to $13.75; old car wheels, $14.25 to $14.75; low phosphorus, $16.50 to $17; machine shop turnings, $8 to $8.50; cast borings, $7 to $7.50; No. 1 cast scrap, $13.50 to $14; malleable, $13 to $13.50; stove plate, $10 50 to $11.

CHICAGO.

Firmer Prices on Finished Products Excepting Wire—Scrap Stronger.

Office of THE IRON TRADE REVIEW, 1328 Monadnock Block, April 27.

The most interesting phase of the market is the continuous buying and large volume of tonnage placed. The period of extremely low prices brought out orders for many thousands of tons and a noticeably firmer tone now prevails. Billets continue to sell at irregular prices, but the minimum prices which have been reported on bars, shapes and plates seem no longer to obtain. On steel bars, $1.30c Chicago is apparently as low as will be done and the leading interest is authorizing nothing below 1.25c. Pittsburg on plates and shapes though 1.40c Chicago can still be done. Some very low prices were made on fabricated material during the week. The contracts placed were of moderate tonnage and scattered. Inquiry for standard rails shows improvement and sales aggregating about 20,000 tons were made here. A western transcontinental road is in the market for from 40,000 to 65,000 tons, which will probably be placed with the leading interest. The mill at Gary is provided for until June and the mill at South Chicago rolling Bessemer rails is being called upon for more rapid deliveries. The demand for light rails is fair, but prices are very weak. The prospective tonnage of cast iron pipe in the southwest is encouraging. Prices of wire products have been severely disturbed and a very prevalent shading of prices has come to the surface. There has been as yet no official announcement of new schedules, but these may be expected in the near future. The scrap market is distinctly stronger and several local consumers are buying steel and mill grade scrap.

Pig Iron.—The buying activity is gradually subsiding, although a number of sales were reported during the week. The belated buyers have been accommodated usually in lots of a few hundred tons with a sprinkling of larger orders. A few sales are reported as low as $11.25 for No. 2 at Birmingham, but the general market level is resting at $11.50 for the last half. With some interests this price, however, does not apply on delivery beyond the third quarter, $12 being asked for the last quarter where offers are considered. The situation with regard to local irons is not more active than the southern market. A furnace price of $16 prevails, which is equivalent to from $16.25 to $16.50 delivered in Chicago. The furnace of the Inland Steel Co., which has been out for relining, will be blown in again in 10 days or two weeks. We quote for local delivery as follows:

Lake Superior charcoal	$19.50 to 20.00
Northern foundry No. 1	17.00 to 17.50
Northern foundry No. 2	16.40 to 16.85
Northern foundry No. 3	16.00 to 16.50
Southern foundry No. 1	16.35 to 16.85
Southern foundry No. 2	15.85 to 16.35
Southern foundry No. 3	15.35 to 15.85
Southern foundry No. 4	14.85 to 15.35
Southern No. 1 soft	16.35 to 16.85
Southern No. 2 soft	15.85 to 16.35
Southern gray forge	13.85 to 14.35
Southern mottled	13.60 to 14.10
Southern silveries, 4 per cent silicon	17.60 to 18.10
Southern silveries, 5 per cent silicon	18.10 to 18.60
Southern silveries, 6 per cent silicon	18.60 to 19.10
Jackson Co. silveries, 6 per cent.	19.40 to 19.90
Jackson Co. silveries, 8 per cent.	20.40 to 20.90
Jackson Co. silveries, 10 per cent	21.40 to 21.90
Malleable Bessemer	16.40 to 16.85
Standard Bessemer	17.00 to 17.50
Alabama basic	16.35 to 16.85

Billets.—The market for billets continues irregular with low prices prevailing. In the west the freight differential from Pittsburg is not being strictly observed. The character of specifications influences prices considerably. No large tonnages are reported for the week, the sales being confined to carload lots. We continue to quote on the basis of $21 Pittsburg as follows: For 4 x 4 rolling billets, $24, and for forging billets, $26, Chicago base.

Merchant Bars. — Apparently the wave of very low prices on steel bars which passed over the market a week ago has passed, although some orders are still being accepted for prompt shipment on the basis of 1.30c Chicago. Contracts up to Jan. 1, however, are very generally made at 1.15c Pittsburg basis. Iron bars have sold at from 1.23c to 1.25c Chicago, but there is little interest in this commodity. Steel bar tonnage, on the contrary, has held up very well and the volume of second orders being received by the implement interests promises well for increased requirements. We continue to quote as follows:

Bar iron, 1.25c; soft steel bars and bands, 1.33c to 1.35c, half extras; soft steel angles, less than 3 x 3, 1.48c; hoops, 1.78c base, full extras, planished or smooth finished tire steel, 1.58c; iron finish, up to 1½ x ½-inch, 1.53c base tire card; iron finish, 1½ x ½-inch and larger, 1.38c base steel card; channel for solid rubber tire, ¾ to 1 inch, 1.88c and 1⅛-inch and larger, 1.78c; smooth-finished machinery steel, 1.63c; flat sleigh shoe, 1.43c; concave and convex sleigh shoe, 1.63c; cutter shoe, 2.75c; toe calk steel, 1.93c; railway spring, 1.73c, base steel card; vehicle spring steel, 1.78c base vehicle card; crucible tool steel, 7c to 9c, with higher prices asked on special grades. Quotations on shafting are 60 per cent off the list for carload lots, and 55 per cent off for less than carload lots, carload freight allowed to points in base territory. On iron and steel bars from local stocks, we quote as follows: Bar iron, 1.70c to 1.80c, full extras; soft steel bars, 1.50c per 100 pound base, plus half extras; soft steel hoops, 2.10c, full extras.

Plates.—A large part of the tonnage for which the low prices were recently made was placed during the last week or 10 days and as indicative of a somewhat better condition the leading interest will not take orders for some of its Pittsburg mills at less than 1.25c Pittsburg. Slightly better than this can still be done in this market but quotations as low as 1.20c Pittsburg are no longer obtainable, though in isolated instances some very low prices continue to be reported. For mill prices, see Pittsburg report. Freight to Chicago, 18 cents. We quote from local stocks as follows:

Tank steel, ¼-inch and heavier, up to 72 inches wide, 1.60c to 1.70c, from 72 inches wide to 95 inches wide, 1.70c to 1.80c; 3/16-inch up to and including 60 inches wide, 1.70c to 1.75c; 72 inches wide, 1.95c to 2c; No. 8 up to 60 inches wide, 1.70c to 1.75c. Flange and head quality, 25c extra.

Sheets.—The local mill finds no cessation in the volume of sheet trade and it can offer little better than three or four weeks delivery. There are several contributory reasons for this, among them the fact that certain mills which buy their sheet bars are still idle. While the roofing trade is dull at present, all other grades of sheets are in good demand and considerable inquiry is received from railroads. There is no change with regard to prices. For mill prices, see Pittsburg report. Freight to Chicago,

18 cents. We quote store prices at Chicago as follows:

No. 10, 2c to 2.10c; No. 12, 2.05c to 2.15c; No. 14, 2.10c to 2.20c; No. 16, 2.20c to 2.30c; Nos. 18-20, 2.50c to 2.55c; Nos. 22-24, 2.55c to 2.60c; No. 26, 2.60c to 2.65c; No. 27, 2.65c to 2.70c; No. 28, 2.75c to 2.80c; No. 30, 3.05c; galvanized sheets, Nos. 10 to 16, 3c to 3.10c; Nos. 18 to 20, 3.05c to 3.15c; Nos. 22 to 24, 3.20c to 3.25c; No. 26, 3.40c to 3.45c; No. 27, 3.60c to 3.65c; No. 28, 3.80c to 3.90c; No. 30, 4.20c to 4.50c.

Rails and Track Supplies.—The order for 15,000 tons of rails for the Gilmore & Pittsburg railroad in Montana was placed with the leading interest. These were of open-hearth steel to be rolled at Gary, which mill has specifications sufficient to keep it running at its present rate until June 1. A fair aggregate tonnage of small lots was picked up during the week. Consumers of Bessemer rails are urging more prompt deliveries and the rail mill at South Works will increase its schedule. Light rail tonnage is fair, but prices continue to be low and concessions of $1 a ton below quoted prices are not uncommon. There is little demand for track fastenings. For prices on standard sections, see Pittsburg report. We quote as follows:

Light rails, 25-pound to 45-pound, $24; 20-pound, $25; 16-pound, $26; 12-pound, $27. Track supplies, f. o. b. Joliet, angle bars, 1.50c to 1.60c; spikes, 1.80c to 1.90c; track bolts, with square nuts, 2.15c to 2.20c; with hexagon nuts, 2.30c to 2.40c; small railroad and square boat spikes, 1.90c base, f. o. b. Chicago.

Structural Steel.—Several instances during the week just passed indicate that the leading fabricator is for the present at least less eager for business and is quoting higher. The contracts for fabricated steel placed during the week were scattered. The 2,000 tons of steel for the Steger building in this city was awarded to the South Halsted Street Iron Works and the prices of the three low bidders were under $40 a ton. The Cambria Steel Co. will make and fabricate the 430 tons of steel for the Post street sub-station of the Washington Water Power Co. at Spokane. The contract for 600 tons for the Union passenger station for the Denver & Rio Grande and the Western Pacific, at Salt Lake City, was awarded to Richards, Noelke & Co. The American Bridge Co. took 1,500 tons for the Chicago & Alton railway, but it is understood that the inquiries from the Illinois Central and Rock Island railroads have not yet been filled. A court house at Twin Falls, Idaho, in which there will be 160 tons, went to the Minneapolis Steel & Machinery Co. The general contract for the Republic building was obtained by Wilson Bros., of Pittsburg, but the steel contract, carrying 790 tons, has not been let. Inquiries for steel for the Minneapolis pro-cathedral and the Bradley building at Duluth are reported. Bids have been received for the new plant of the Inter Ocean Steel Co. at Chicago Heights, and it is probable the 4,500 tons will be awarded to the Kenwood Bridge Co. The 2,500 tons for the transmission towers for a western water power company mentioned last week went to Milliken Bros. Marshall Field & Co. are to build under their present Adams street store three basements which will require about 2,000 tons of steel. With regard to the price of plain material the situation is about as it is for plates. The tonnage is very good. For mill prices on plain material see Pittsburg report. Freight to Chicago, 18 cents. We quote from local jobbers' stocks as follows:

All angles, 3 inches and larger, including 6 inches, $1.60 per 100 pounds; angles over 6 inches, $1.70 per 100 pounds base; beams, 3 to 15 inches, inclusive, $1.60 per 100 pounds, base; channels, 3 inches and larger, $1.60 per 100 pounds base.

Merchant Pipe and Boiler Tubes.—Except for a natural increase in orders from the northwest incident to the opening of navigation, there has been no change of interest in connection with pipe tonnage. Prices are well maintained. The demand for tubing is very dull. Out of store we quote for lap weld tubes 65 off and for charcoal 50 off. For mill discounts, see Pittsburg report.

Cast Iron Pipe.—There were no important municipal lettings during the week, but a number of small lots were awarded. The 2,000 tons at Salt Lake City was awarded to a local general contractor of that place. The United States Cast Iron Pipe & Foundry Co. is the low bidder for 500 tons at Dayton, O., but the contract has not yet been let. On May 4 bids are to be received for 4,000 tons at St. Louis and for 2,800 tons at Hugo, Okla. Prices are unchanged and we quote as follows:

Four-inch water pipe, $27.50; 6 to 14-inch, $26.50; larger sizes, $25.50; gas pipe, $1 a ton higher.

Wire Products.—The wide circulation of the report of an authorized cut in the price of wire products has greatly enhanced the disturbance in the market and has resulted in a considerable increase in the concessions offered by independent manufacturers. Where competitive conditions exist, the weakness is general. An announcement of the prices which are to prevail following the spring trade will probably be brought out earlier as a result of these conditions. In the meantime the tonnage consumed is maintained to an unexpected degree. We quote for Chicago delivery as follows:

Wire nails, jobbers' carload lots, $2.13; retailers' carload lots, $2.18; painted barb wire, jobbers' carload lots, $2.28; retailers' carload lots, $2.33, with 30c for galvanizing; plain wire to jobbers in carloads, $2.03. Wire rods, Bessemer, $33; open-hearth, $34; chain rods, $33, f. o. b. Pittsburg.

Old Material.—The scrap market has a distinctly stronger appearance following the entrance into the market of some of the local consumers. A sale of 2,000 tons of No. 1 wrought was made on the basis of $12.75 delivered East Chicago and $12.50 Chicago is apparently the bottom of the market. There is also inquiry for No. 1 busheling. The Chicago, Burlington & Quincy railroad has a list of about 4,000 tons in the market for which consumers will undoubtedly bid actively at prices likely to be an advance over present quotations. We have revised our prices and quote gross tons in the first paragraph as follows:

Old car wheels	$14.00 to 14.50
Old iron rails	16.75 to 17.25
Re-rolling rails (4 ft. and over)	13.50 to 14.00
Old steel rails (4 ft. and under)	14.00 to 14.50
Light section relayers, 45 lbs. and under, subject to inspection	21.00 to 23.00
Relaying rails, subject to inspection	19.00 to 19.50
Frogs, switches and guards	12.75 to 13.25
Heavy melting steel	13.25 to 13.75

We quote, net tons, as follows:

No. 1 R. R. wrought	$12.50 to 13.00
No. 2 R. R. wrought	11.00 to 11.50
Knucklers, couplers and springs	11.75 to 12.25
Shafting	15.25 to 15.75
Iron car axles	17.00 to 17.50
Steel car axles	16.50 to 17.00
Dealers' forge No. 1	9.50 to 10.00
Pipes and flues	8.50 to 9.00
No. 1 cast, 150 lbs. and less	12.75 to 13.25
No. 1 mill	7.00 to 7.50
Mixed busheling (Nos. 1 and 2)	8.00 to 8.50
Country sheet	5.00 to 5.50
No. 1 boiler cut	9.00 to 9.50
Boiler punchings	12.00 to 12.50
Cast borings	5.25 to 5.75
Mixed borings, etc	5.25 to 5.75
Machine shop turnings	6.50 to 7.00
Railroad malleable	11.75 to 12.25
Agricultural malleable	10.50 to 11.00
Stove plate and light cast scrap	11.25 to 11.75
Old iron splice bars	14.50 to 15.00

The first shipment of iron ore from the Mesabi range for the season of 1909 was made April 16, from the Virginia district, by the Republic Iron & Steel Co., a train load of ore being sent to Two Harbors.

CLEVELAND.

Some Sales of Ore and Many Reservations—Prices Generally Firmer.

Office of THE IRON TRADE REVIEW,
Browning Building, April 27.

Iron Ore.—Although nearly all furnaces are well supplied with ore, some will soon need new supplies, and a number of sales of small lots have been made for early delivery. Some sales of good size have also been made at last year's prices, with the guarantee that buyers will be given the benefit of any price reductions that may be decided upon. For the most part, however, buyers are simply making reservations, without actual contracts being signed. It is probable that reservations of this kind amount at the present time to more than a million tons. There is very little discussion as to prices, but it seems probable that there will not be a reduction. Ore shipping from the Minnesota mines is fairly well started. For more than a week, the Franklin group of the Republic Iron & Steel Co. has been sending ore to Two Harbors. The Buffalo & Susquehanna, Laura and the Chisholm group of underground mines of the Oliver Iron Mining Co. are also beginning to send ore to the docks. Shovels have just been started in the Mahoning, Hull-Rust, Burt and Morris pits. Last year shipping of ore was not begun until May 14. This year, shipping of ore from mines and the starting of vessels have been earlier than last year on account of the attitude of the labor unions. At the Soo, on Tuesday of this week, there were about 60 boats, mostly ore carriers, waiting for the opening of the Soo passage and the movement through the locks was started on that day, but ice is still causing much delay. There was very little need of the boats starting before June 1, but as the labor unions displayed a determination to make a fight against the establishment of the open shop principle, the vessel interests decided to make an earlier start, with the expectation that the unions will be defeated before the time when there will be real need of ore vessels moving. Up to the present time, vessel owners have not experienced a great deal of difficulty in getting engineers and other employes, although it has been necessary to bring some engineers from the Atlantic coast. The seamen's union has taken a vote of all local branches on the question of striking, but the officers decline to announce the result. Cleveland and other locals are known to have voted in favor of a strike.

On base ores, with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $4.50; Mesabi Bessemer, $4.25; old range non-Bessemer, $3.70; Mesabi Bessemer $3.50.

Pig Iron.—Inquiry has not been quite so active, but some of the important inquiries pending last week, including one for 24,000 tons for a Massillon cast iron pipe company, 10,000 tons of basic and 1,000 tons of malleable, have been closed. A Cleveland firm has closed some 60,000 tons outside of the Cleveland district. Prices are somewhat firmer, and although $14 valley for No. 2 has been done within a few days, the usual quotation is now $14.50. We quote delivered in Cleveland as follows:

No. 1 foundry	$15.25 to 15.50
No. 2 foundry	14.75 to 15.00
No. 3 foundry	14.25 to 14.50
No. 2 southern	15.35 to 15.85
Gray forge	13.75 to 14.00
Bessemer	15.90 to 16.15
Lake Superior charcoal	19.00 to 19.50
Jackson Co. 8 per cent silvery	20.05

Coke.—Some offers have been made at low prices, but practically no selling has been done. We quote spot furnace coke at $1.50 to $1.65 at the ovens, and on contract, $1.65 to $1.75; for first class Connellsville foundry coke we quote on shipments up to the second half $2 to $2.25.

Finished Materials.—Activity in steel bars, plates and shapes continues, and prices are somewhat firmer. On steel bars the 1.10c price seems to have disappeared, and 1.15c is the prevailing price for both prompt shipment and on contract up to Jan. 1. The mills are not encouraging the making of contracts, but buyers are showing an increasing desire to do so. The leading interests have advanced their quotations on plates and shapes to 1.25c. Bar iron is very dull, and prices are irregular. The county commissioners, under pressure from labor unions, awarded the contract for the Denison-Harvard bridge, 6,300 tons, to the King Bridge Co., of Cleveland, which bid $49.90 per ton erected, while the McClintic-Marshall Construction Co., Pittsburg, bid $49.60. The Pittsburg company, on the ground that it is the lowest bidder, has brought mandamus proceedings to compel the commissioners to award it the contract, and a legal battle will take place. The commissioners state in justification of their action that the Cleveland company agreed to do the work in shorter time than the Pittsburg company. The King company has closed for the steel with Lackawanna Steel Co.

Old Material.—While prices have not changed materially since last week, the quantity of material passing is gradually increasing. There seems to be a better feeling among dealers, with somewhat more confidence in the immediate future, which has steadily gained from an apparent starting point three weeks past. In fact, some dealers declare that the end of the era of low prices of old material has been seen. We quote f. o. b. Cleveland as follows:

Old iron rails	$15.00 to 15.50
Old steel rails (re-rolling)	13.50 to 14.00
Old steel rails (under 6 feet)	13.50 to 14.00
Old car wheels	14.50 to 15.00
Old steel boiler plate	11.00 to 11.50
Malleable iron (railroad)	12.50 to 13.00
Steel axles	17.00 to 17.50
Malleable iron (agricultural)	11.50 to 12.00
Heavy steel	12.00 to 12.50
Country mixed steel	11.00 to 11.50
Low phosphorus	16.00 to 16.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$12.00 to 12.50
No. 1 busheling	10.00 to 10.50
No. 1 machine cast	12.50 to 13.00
Iron axles	16.00 to 16.50
Axle turnings	8.50 to 9.00
Machine shop turnings	6.50 to 7.00
Grate bars	10.50 to 11.00
Pipes and flues	10.00 to 10.50
Tank iron	9.00 to 9.50
Hoop and band iron	7.00 to 7.50
Sheet iron	5.50 to 6.00
Wrought drillings	6.50 to 7.00
Stove plate	10.50 to 11.00
Cast borings	6.00 to 6.50

CINCINNATI.

Price for Last Half Advanced—Melt Only Slightly Increased.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., April 27.

Pig Iron.—The incident of the week has been the withdrawal of the $11 quotation for last half delivery for No. 2 foundry Birmingham by the interest which has been conspicuous in making this price. Southern iron is now quotable at $11.50 Birmingham for last half. There has been considerable buying of both northern and southern iron for deliveries running from July to January, the northern iron being taken at $14 furnace in the Ironton district, although it is practically certain that in some instances the $14 price has been shaded. There is still considerable last half inquiry. A northern Indiana melter is asking for prices on 2,000 tons of low grade. A Kentucky consumer is in the market for 1,000 tons of No. 2. A southern Ohio melter is figuring on 2,000 tons of foundry grades and a northern Ohio consumer wants 3,000 to 4,000 tons of malleable. The leading interest in steam pumps is inviting propositions for 11,000 tons for its different plants. There are a number of smaller tonnages ranging from 300 to 800 tons, all for last half delivery. There is practically no call for spot iron for second quarter and

prompt delivery and second quarter iron are still available at $11 Birmingham for No. 2 foundry. With southern iron at $11.50 for deliveries beyond July, northern iron can now compete with southern at a number of Ohio points, and there is some talk of one of the principal southern Ohio interests advancing prices. The demand for last half is regarded as purely speculative, with consumers buying at $11 believing this to be a safe basis. What effect an advance of 50 cents per ton may have is not yet clear. The melt in this territory, while slightly improved, is not sufficient to keep up with the amount of iron bought and some furnaces are unable to obtain shipping instructions in sufficient volume to enable them to ship up to their current rate of production. We quote for prompt shipment and delivery over the second quarter delivered Cincinnati, based on freight rates of $3.25 from Birmingham and $1.20 from Ironton as follows:

Southern foundry No. 1	$14.75 to 15.25
Southern foundry No. 2	14.25 to 14.75
Southern foundry No. 3	13.75 to 14.25
Southern foundry No. 4	13.25 to 13.75
Southern No. 1 soft	14.75 to 15.25
Southern No. 2 soft	14.25 to 14.75
Southern gray forge	13.25 to 13.50
Northern No. 1 foundry	15.70 to 16.20
Northern No. 2 foundry	15.20 to 15.70
Northern No. 3 foundry	14.70 to 15.20
Northern 8 per cent silicon	19.70

Finished Material.—The market continues unsettled and prices irregular. Steel bars have been sold at 1.15c Pittsburg. The basis for structural is nominally unchanged, but fabricators are taking business at prices below schedules. Specifications on contracts are fair and some fairly good sized orders for spikes have been placed.

Coke.—As in pig iron foundries are taking advantage of present prices and are contracting for their last half requirements or longer for their favorite brands. Some Connellsville operations have lowered their schedules on foundry cokes, but the general market remains unchanged. There has been no material increase in the shipments to melters in this territory. Spot coke quotations are represented by the following figures in the leading coke producing districts, by the inside prices, while contract prices are represented by the outside figures. Business is being taken within the range of quotations.

	PER TON.
Wise county furnace coke	$1.60 to 1.90
Wise county foundry coke	2.00 to 2.25
Pocahontas furnace coke	1.65 to 1.85
Pocahontas foundry coke	1.85 to 2.25
Standard Connellsville furnace coke	1.50 to 2.35
Standard Connellsville foundry coke	1.90 to 2.35

Old Material.—There is no material change in prices, although there is considerable irregularity. Some bargain sales are reported occasionally, but the quotable basis remains about the same as last week. Dealers' prices here are as follows:

Old No. 1 R. R. wrought, net tons	$13.50 to 14.00
No. 1 machinery, net tons	13.00 to 13.50
Old iron rails, gross tons	15.50 to 16.50
Old steel rails (re-rolling) gross tons	13.50 to 14.00
Old short lengths, gross tons	12.00 to 13.00
Old iron axles, net tons	15.50 to 16.50
Heavy melting scrap, gross tons	12.00 to 12.50
Stove plate, net tons	11.00 to 11.50
Heavy turnings	7.50 to 8.00
Cast borings, net tons	4.50 to 5.50
Car wheels, gross tons	13.50 to 14.50

PHILADELPHIA.

Pig Iron Consumers More Active—American Bridge Co. Gets Curtis Building.

April 27.

Pig Iron.—The most important feature of the situation is that it has changed from a "buyers' market" to a "sellers' market." The consumer is now taking the initiative, and offerings are being made in a good many instances for tonnages sufficient to cover for the last half. This does not mean that prices are any better, but it is taken as an encouraging feature in that it indicates the belief of pig iron melters that rock bottom figures have been reached and that there is no longer reason for deferring purchases in the hope of striking a more advantageous bargain. The fact that leading Alabama producers have advanced their prices to $11.50, Birmingham basis, and that there is now no competition in this territory from that direction has simplified the matter to some extent, and there is also little competition from Virginia, as the leading producers in that section are holding well above the current level. The most active call is still from the pipe makers, who are picking up odd lots for early shipment at a shade under $15, delivered, for forge. One lot of 5,000 tons of basic had been taken by an eastern steel interest at $15, delivered, but with this exception there has been no activity in steel-making irons, and the situation is probably weaker in this line than any other, as consumers are holding up shipments to a considerable extent. Low phosphorus iron is also extremely quiet. In foundry there is a decidedly better inquiry and some selling is reported for fairly early shipment on a basis of $16 to $16.25, delivered; for business running through the second half, a stiff premium is asked and furnaces are refusing bookings wherever possible. Car wheel works are inquiring for considerable charcoal iron, and the demand from this field is improving. Stocks on furnace yards continue to increase, but at a much less rapid rate than is generally believed, and orders on hand have shown a slight increase since the last meeting of the Eastern Pig Iron Association. We quote, early delivery to eastern Pennsylvania plants, as follows:

No. 1X foundry	$16.75 to 17.00
No. 2X foundry	16.00 to 16.50
No. 2 plain	15.50 to 16.00
Standard gray forge	15.00 to 15.25
Basic	15.00 to 15.50
Low phosphorus	19.00 to 20.00
No. 2 Birmingham	15.75 to 16.25
No. 2X Virginia	16.50 to 17.00
No. 2 plain Virginia	16.00 to 16.50

Finished Materials.—The American Bridge Co. will furnish the 15,000 tons of steel required for the Curtis Publishing Co. building. It is understood that three other leading structural steel interests offered bids only slightly in excess of that at which the contract was placed. The Jones & Laughlin Steel Co. has the contract for 600 tons for the Wilkesbarre high school and also secured about 300 tons of spikes at the recent Washington award for Isthmian supplies. The bulk of this latter business, however, was secured by the Corporation interests, which will furnish 12,000 to 14,000 tons of plates, shapes and bars. Cramps have the general contract for the Gray's armory, 1,200 tons, but the steel award has not yet been made, nor has it in the case of the New York assay office addition, for which this interest also has the general contract and for which Bethlehem sections are specified. The Bellevue-Stratford addition will require some 2,000 tons, but plans have not yet gone out. The Real Estate Trust addition is as yet undecided. A new project, which will require a good tonnage of steel, is the Girard office building, the general contract for which has gone to the Fuller Co. Plain materials are selling moderately at unchanged prices, they being as follows for local delivery:

Structural shapes, 1.45c to 1.55c; plates, 1.45c to 1.50c, with the usual extras; sheets, No. 28, 2.80c; steel bars, 1.30c to 1.40c; refined iron bars, 1.35c to 1.45c.

Old Materials.—The market is sentimentally better, and small price advances are noted in railroad wrought, yard scrap, wrought pipe, stove plate and forge fire material. Heavy steel is quiet, holders being unwilling to sell any quantities at the prices offered, these ranging from $13.25 to $13.75 or $14 for exceptional material. Labor difficulties in the valleys are improving, the Danville puddlers having gone back and operations having been resumed in that district. We quote,

gross tons, eastern Pennsylvania delivery, as follows:

Old steel rails (re-rolling)	$14.50 to 15.00
No. 1 steel scrap	13.50 to 14.00
Old steel axles	17.00 to 17.50
Old iron axles	18.50 to 19.50
Old iron rails	16.50 to 17.00
Old car wheels	14.00 to 14.50
Choice scrap R. R. No. 1 wrought	16.00 to 16.50
No. 1 yard scrap	14.00 to 14.50
Machinery scrap	14.00 to 14.50
Low phosphorus scrap	17.00 to 18.00
Wrought iron pipe	13.50 to 14.00
No. 1 forge fire scrap	12.00 to 12.50
No. 2 forge fire scrap, ordinary.	8.50 to 9.00
Wrought turnings	10.50 to 11.00
Axle turnings, heavy	11.00 to 11.50
Cast borings	9.00 to 9.50
Stove plates	12.00 to 12.50

NEW YORK.

More Activity in Pig Iron—Many Structural Contracts Being Figured On.

Office of THE IRON TRADE REVIEW, Room 1005, No. 90 West St., April 27.

Iron Ore.—Furnace interests are generally so well covered for some time ahead that current buying of ore is of small proportions. Now and then an old customer comes to a producer and secures shipments on the basis of whatever price may be established later in the season. Three or four miners of local ores, having a monthly output of perhaps 25,000 tons, are disposing of their current production at rather low figures, and the situation is complicated in this way. There has been some further buying of Swedish ores running extremely high in iron for mixture with high phosphorus American ores.

Pig Iron.—The local market is more active than at any other time this year. The improvement in inquiry noted last week has broadened very perceptibly and has taken in practically all grades of iron. Melters apparently have reached the conclusion that current prices are rock bottom, and the surprisingly large crop of inquiries now developing is evidence that this feeling is quite general. Furthermore, this inquiry for the most part is resulting in immediate business. Very little is being done for delivery later than August 1 and the bulk of current orders is for May and June shipment; the usual advance insisted upon by furnaces for last half shipment is $1 and consumers are as yet unwilling to accept this figure. Most of the present business is in New England and upper New York state, to which the Buffalo district has been the heaviest seller. There has been considerable activity in malleable, of which sales have run close to 15,000 tons. The nominal price is $14 to $14.50, Buffalo furnace, for prompt shipment. The 11,000-ton inquiry noted a week ago is still pending. Brisk business in foundry irons is being done at as low as $15, eastern Pennsylvania furnace, for No. 2X. Some little basic business is also under negotiation and one 5,000-ton sale has been closed. There has also been some readjustment of tonnage at an eastern steel works which had contracted for its iron at a high price. Current business is so widespread and is being closed so quietly in many instances that no accurate estimate of the tonnages under negotiation and placed can be made. We quote, delivery at New York tidewater during May and June, as follows:

Northern foundry No. 1	$16.25 to 16.75
No. 2X foundry	15.75 to 16.25
No. 2 plain	15.25 to 15.75
No. 2 southern foundry	15.00 to 15.50
Malleable	16.50 to 17.00
Basic	15.50
Gray forge	15.00 to 15.25

Ferro-Alloys.—Brisk business is reported in all lines of alloys, practically all for western shipment. The Washburn wire interests, after trying to buy their ferro-manganese requirements up to July, 1910, have covered to Jan. 1, their purchase being 200 tons. The Latrobe Steel & Coupler Co. is inquiring for 200 tons of manganese and 250 tons of ferro-silicon. The American Brake Shoe & Foundry Co. has purchased 300 tons of ferro-manganese on a basis of $41, New Orleans. The American Steel Foundries are in the market for 500 to 800 tons of ferro-manganese and an equal quantity of 11 per cent Bessemer ferro-silicon. The Carnegie Steel Co. has made a small purchase of ferro-silicon and an independent steel company is in the market for 450 to 550 tons for delivery during the balance of the year. The Commonwealth Steel Co. has purchased 200 tons of ferro-silicon and the market is now firm at $67, Pittsburg. The Lorain Steel Co. is in the market for 50 tons of silico-spiegel, the last sale of which was at $80, Baltimore.

Finished Materials.—An early estimate of the structural steel bookings during April is 200,000 tons, distributed roughly 70,000 to the American Bridge Co. and 130,000 to independent concerns. Three large propositions make up over half of the tonnage booked by the leading interest. An extremely large volume of prospective business is being figured on, one feature being a large number of public buildings both in the west and in this district. These, however, are slow in closing.

Orders placed by the railroads during the week include the following: Cuban bridges, 5,000 tons, Pennsylvania Steel Co.; Erie bridges, 6,000 tons, divided among three concerns, including American Bridge Co. and Pennsylvania Steel Co.; Providence train shed, 800 tons, Shoemaker & Co.; Chicago & Alton bridges, 1,500 tons, American Bridge Co.; Pennsylvania track elevation work at Chicago, 1,100 tons, Riter-Conley Construction Co.; Wisconsin Central bridges, 600 tons, Wisconsin Bridge Co.; Central of Georgia bridges, 300 tons, Virginia Bridge Co.; Buffalo, Rochester & Pittsburg, 2,500 tons, Pennsylvania Steel Co.; Ann Arbor bridges, 300 tons, Toledo Bridge Co., and a passenger station at Salt Lake City, 700 tons, to the Noelke-Richards Iron Works; viaduct work of the Galveston, Texas & San Antonio will require 1,000 tons and several large propositions, including the Philadelphia & Reading, are still pending. The Central of New Jersey is asking figures on 1,000 tons of car sills and considerable buying along this line will be done by other roads before the end of the year. The Delaware & Hudson will need 5,000 underframes, requiring 10,000 of steel, and the Erie, Merchants Despatch and Central of New Jersey will each require 2,000 additional. The Chesapeake & Ohio has placed a large locomotive contract, the Pennsylvania has ordered the building of 44 at its Altoona shops, and the New York Central has placed contracts for 13 with the American Locomotive Co.

The Edison power plant, 10,500 tons, has been withdrawn, and litigation is threatened on the part of the Cornell receivers. The receivers of Milliken Bros. have secured an order for 2,600 tons of transmission towers for the Anaconda interests and a 300-ton factory at New Durham, N. J. Lackawanna steel will be used in the Denison-Harvard viaduct at Cleveland, 6,300 tons, unless prevented by pending litigation; in the Steger building at Chicago, 2,000 tons, and in the Boston & Albany pier shed, 1,600 tons, through the Boston Bridge Works. Other structural contracts placed include the following: Hall of Justice at San Francisco, 1,500 tons, to Dyer Bros.; high school at Passaic, N. J., 700 tons, Keystone Structural Co.; addition to Hotel Strand, Atlantic City, 600 tons, Eastern Steel Co.; a bank at Utica, 600 tons, and a local apartment house, 500 tons, to the Pennsylvania Steel Co.; and an 1,100-ton local apartment, to an independent interest. R. C. Hoffman & Co. secured the federal penitentiary at Atlanta, 300 tons, over 21 other bidders. Among pending contracts a loft building on Thirty-eighth street will require 1,000 tons; the Erwin cotton

mills, 600 tons; two New England mills, 4,200 tons; a high school at Wilkinsburg, Pa., 800 tons, and a building for Wm. Raa's Sons, Philadelphia, 1,000 tons.

Some heavy orders for billets have been received during the week, the aggregate tonnage reaching a very large figure, practically all on a sliding price basis. Steel bars are selling freely at 1.15c, Pittsburg, but it is stated that implement makers as yet have purchased only a small percentage of their normal requirements. Car builders have ordered a good tonnage of plates during the week. We quote as follows:

Angles, 3 to 6 inches x ¼-inch and heavier, 1.46c; beams, 3 to 15 inches, 1.46c; tees, 3 x ¼-inch and heavier, 1.51c; plates, carloads, tanks, 1.46c; marine boilers, 1.86c; bar iron, 1.35c to 1.40c; soft steel bars, 1.31c to 1.36c; sheets, No. 28 black, 2.56c.

Cast Iron Pipe.—New York City has a small letting of 6 and 12-inch pipe on Thursday. Warwick, N. Y., has ordered 200 tons from R. D. Wood & Co. Prices continue very low.

Old Materials.—The market shows no material change from that noted a week ago. Trading is still confined to small lots and mills are showing little interest in the situation. One or two large sales of heavy melting steel are reported, but cannot be verified. We quote, gross tons, New York delivery, as follows:

Old steel rails (re-rolling)	$13.50 to 14.50
Relaying rails	19.00 to 19.50
Old car wheels	12.50 to 13.00
Old iron car axles	15.00 to 15.50
Old steel car axles	13.50 to 14.00
Heavy melting steel	10.50 to 11.00
No. 1 railroad wrought	13.50 to 14.00
Iron track scrap	11.50 to 12.00
Wrought pipe	9.00 to 10.00
Cast borings	5.50 to 6.00
Wrought turnings	7.00 to 7.50
Heavy cast scrap	12.50 to 13.00
Railroad malleable	11.00 to 11.50
Stove plate	8.50 to 9.00
Grate bars	8.50 to 9.00

ST. LOUIS.

Good Tonnage of Pig Iron Sold and Prices are Firmer.

April 26.

Pig Iron.—A total tonnage of from 20,000 to 25,000 tons of iron, including basic, probably was sold in the St. Louis territory last week, and inquiries aggregating as much as 5,000 tons are still out. Quite a tonnage of southern No. 2 was placed at $11 for nearby deliveries and at $11.50, Birmingham, for shipment over the second half, although some of the business was placed at $11 for shipment up to Jan. 1.

Dealers in this territory do not assert that anything approaching a boom has arrived, but that a healthy buying movement had started is manifest. Some of the inquiries out will be placed this week. Some of the dealers refuse to quote $11.50 for No. 2, Birmingham, beyond July, and one brand of southern iron is strong at $12.50 for deliveries prior to Aug. 1. Some of this iron was included in the sales made last week. Buyers seem to be coming forward rather than run the risk of having to face an advanced market.

A fair volume of No. 2 Ohio iron was placed at $14 f. o. b. the furnaces for shipment over May and June and the last half of the year.

Our quotations, delivered, to which the freight of $3.75 from Birmingham has been added, follow:

No. 1 southern	$15.75 to 16.25
No. 2 southern	15.25 to 15.75
No. 3 southern	14.75 to 15.25
No. 4 southern	14.25 to 14.75

Coke.—The prices on this article were unchanged by last week's trading, and several good size inquiries are out for shipment over the remainder of the year. A good round tonnage of business was placed last week. Connellsville best-selected 72-hour foundry coke is still held at $2 to $2.25, ovens, though some lower prices are occasionally heard of. Connellsville 48-hour furnace coke is quoted at $1.50 to $1.75, ovens. Prices are unchanged on the Virginia and West Virginia grades. The freight rate to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is consigned beyond St. Louis.

Old Material.—Our quotations on scrap iron follow:

Cast iron borings, free from foreign material, net tons	$ 5.00 to 5.50
Steel axle turnings, gross tons	10.00 to 11.00
Steel railroad axles, net tons	16.50 to 17.00
Iron railroad axles, net tons	17.50 to 18.50
Miscellaneous steel scrap, gross tons	9.00 to 11.00
Old car wheels, gross tons	14.50
No. 1 railroad cast scrap, net tons	12.00 to 12.50
Heavy machinery cast, net tons	11.50 to 12.50
Stove plate and light cast, net tons	10.00 to 11.00
Sheet iron, net tons, uncut	4.00 to 5.00
No. 1 railroad wrought, net tons	12.00 to 13.00
Railroad malleable, net tons	12.00 to 12.50
Heavy melting steel, net tons	11.00 to 12.00
Relaying rails, net tons	16.00 to 17.50

BIRMINGHAM, ALA.

Shipments Fairly Good—Home Consumption is Large.

April 26.

The tide is turning for the better, is the way some men put it in talking of the pig iron market in the southern territory. The tonnage sold during the month of April has come up above all expectations, the month starting in with a gloomy feeling prevailing on all sides. There has been a wide difference in quotations, however, among the manufacturers in this territory. The Tennessee Coal, Iron & Railroad Co., which has been selling iron at $11 per ton No. 2 foundry, now quotes $11.50, while the Sloss-Sheffield Steel & Iron Co. and others announce positively no iron sold this month under $11.50 per ton. There has been some accumulation, but practically every company in this section sold more than its make for the month. The shipments of pig iron from the southern territory have been fairly good, considering the general conditions. There is a steady melt at home, the cast iron pipe makers in particular doing extraordinarily well and having orders on hand and in sight that will warrant a steady operation of plants through the entire year. The soil pipe plants in this section have lately been buying iron and appear to be working up a good trade. Much progress has been made on the big addition to the Bessemer Soil Pipe Co.'s works while the portion of the Central Pipe Co.'s plant at Anniston which was destroyed by fire a few weeks ago has almost been rebuilt.

Some little improvement is announced in the foundry and machine shop trade in this section. The Payne & Joubert Machine & Foundry Co. will more than double its plant located at East Birmingham, a suburb of Birmingham. This plant is a branch of a large machine shop and foundry located in New Orleans. The firm melts a large amount of iron annually in addition to buying the metal ahead of time and holding some for a rise in the market. The plant at East Birmingham has been kept in steady operation practically from the start. There has been a consolidation of the Birmingham and New Orleans interests and headquarters will be established in this district. The capital stock has been increased from $150,000 to $400,000.

The following quotations prevail for old material in the southern territory:

Old iron rails	$13.50 to 14.00
Old iron axles	13.00 to 14.00
Old steel axles	12.00 to 12.50
Old steel rails	9.00 to 9.50
No. 1 railroad wrought	12.50 to 13.00
No. 2 railroad wrought	10.00 to 10.50
No. 1 country	9.00 to 9.50
Heavy melting steel	8.50 to 9.00
Old steel boiler plate	6.50 to 7.00
No. 1 machinery	10.00 to 10.50
Old standard car wheels	12.00 to 12.50
Tram car wheels	10.50 to 11.00
Stove plate	8.50 to 9.00
Cast iron borings	4.00 to 4.50

METAL MARKETS.

ST. LOUIS.

April 26.

Lead and Zinc.—The best price reported for zinc ore in the Missouri-Kansas-Oklahoma district last week

was $43.50 a ton on an assay base of $41 a ton, and much of the ore brought better than $40 base price. The highest price for the preceding week was $39.50 for 60 per cent ore. A heavy decline in production was reported in the Joplin district because of excessive rains, but brisk buying at stronger prices resulted. Buyers said they had no trouble in securing all the ore they desired. Lead ore brought a high price of $58 a ton, and a rumor was current in the district that $60 had been paid for several tons of ore for experimental purposes. A marked increase in the average lead prices over the preceding week, ranging from $55 to $57 a ton. Calamine was weak at $17 base, and $20 was paid for ore running better than 40 per cent. St. Louis spelter was firm at $4.95, and pig lead closed at $4.15. The total shipments of ore from the entire district for the week ending April 24, were as follows: Zinc, 9,936,360 pounds, valued at $185,267. Lead—1,649,380 pounds, valued at $46,789.

NEW YORK.

April 27.

Copper.—Buying during the past week has been rather limited but the market has maintained sufficient strength to hold quotations unchanged at the figures reported a week ago. There is little demand for European account and home consumers manifest little interest in the situation. We quote: Lake, 12⅞c to 13c; electrolytic, 12½c to 12⅝c; casting, 12⅜c to 12½c.

Pig Tin.—Largely through a firmer tone prevailing in the London market, the local situation has gained some strength during the week and the domestic market is now 29½c to 29⅝c for early shipment. The statistical position of the market is somewhat improved.

Pig Lead.—A better demand is noted for this metal and a fair volume of business is developing all the while. The current market is steady at 4.20c to 4.25c, New York.

Spelter.—Heavy purchasing by galvanizers has been sufficient to hold the price level at that reported a week ago, 5.02½c to 5.07½c, New York. The situation is complicated by tariff uncertainties.

Antimony.—Buying is somewhat more brisk in anticipation of the imposition of a duty. We quote: Cookson's, 8¼c to 8½c; Hallett's, 8c to 8¼c; ordinary brands, 7⅞c to 8c.

CHICAGO.

April 27.

Copper sales have been in fair volume and the market is firm. Spelter still continues very strong and lead advanced in price during the week. We quote for carload lots. Smaller quantities command fractionally higher prices.

Lake copper, carload lots, 13¼c to 13½c; casting, carload lots, 13c to 13¼c; pig tin, 31c to 31½c; spelter, 5.25c to 5.40c; pig lead, desilverized, 4.30c to 4.40c in 50-ton lots; corroding, 4.75c to 4.80c in 50-ton lots; car lots, 2½c per 100 pounds higher; sheet zinc, 6¾c list f. o. b. LaSalle in car lots of 600-pound flasks; Cookson's antimony, 10½c to 11c; other grades, 10c.

Demand for scrap metals is almost entirely routine. Prices have changed too little with the exception of a strengthening in lead, to warrant revising quotations.

Copper wire, 11¼c; heavy copper, 11c; light copper, 10¼c; heavy red brass, 10¼c; heavy yellow brass, 8¼c; light brass, 6c; No. 1 red brass borings, 8½c; No. 1 yellow brass borings, 7½c; brass clippings, 8c; tea lead, 3½c; lead scrap, 3.85c; zinc, 3.25c; tin pipe, 24c; tin foil, 22½c; pewter, 17c; electrotype plates, free from wood, 3.75c; electrotype dross, 2.60c; stereotype plates, 4c; stereotype dross, 3.75c; prime slab zinc dross, $45 per ton.

FAVORS BUYING AMERICAN PIG IRON.

(Special Telegram.)

Seattle, Wash., April 25.—The United Metal Trades Association of the Pacific coast in annual convention in this city yesterday elected O. E. Heintz, Portland, president, Gilbert Hunt, Wallawalla, vice president, and Albert Smith, Portland, secretary-treasurer. A strong sentiment favoring purchase of American instead of foreign pig iron by Pacific foundries prevailed.

HARVESTER COMPANY BUYS.

(Special Telegram.)

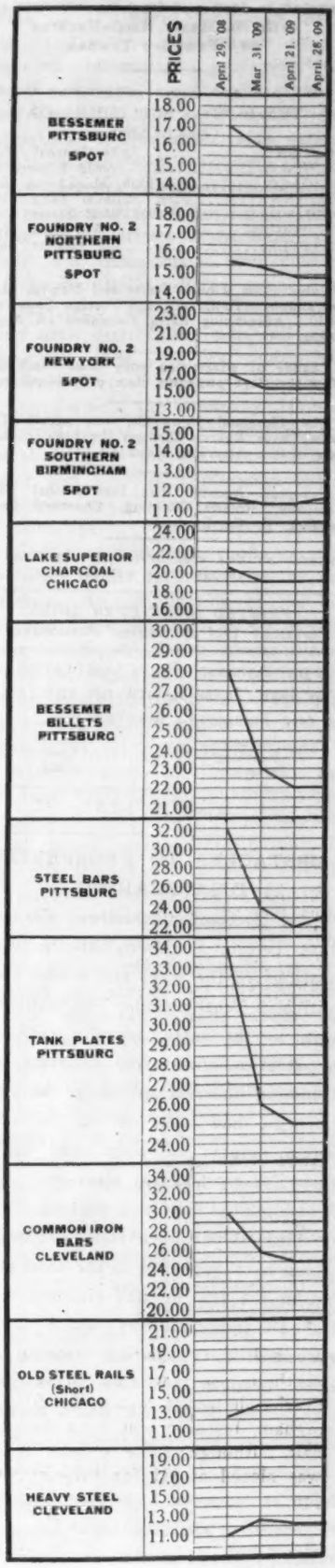
New York, April 28.—The International Harvester Co. has bought 13,500 tons of pig iron for its Auburn works, 9,000 foundry and the balance malleable. The General Electric inquiry has not yet been placed. The selling movement is keeping up.

MONTREAL STEEL REPORT.

The report of the Montreal Steel Works, Ltd., for the year ending Dec. 31, 1908, compares with the preceding year as follows:

	1908.	1907.
Net profits	$93,330	$187,640
Reserve	.....	60,000
Balance	$93,330	$127,640
Dividends	84,000	105,000
Surplus	$ 9,330	$ 22,640

PRICE CHART.



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OBSTACLES TO PROSPERITY DISAPPEARING.

Last December, Andrew Carnegie gave certain testimony at the tariff hearings of the ways and means committee in Washington. The testimony was, in the main, roundly criticized by steel manufacturing interests, the common observation being that Mr. Carnegie had been out of the trade for a number of years, and during those years a great deal had happened. That these criticisms were justified is demonstrated by events which have happened in the steel market in the few months elapsing since last December, during which period the steel manufacturing industry has been brought to face much more closely the facts upon which its criticisms of Mr. Carnegie's testimony were based. It is one thing to argue from an academic standpoint that conditions have changed, as affecting the relations between the cost of steel production and the rates in the tariff, and quite another thing to see how conditions have changed when the relation being studied is the relation between production costs and selling prices, the two being uncomfortably close together.

The steel market has given testimony of its own of late that production costs are higher than when the historic low prices for iron and steel commodities were made. Had there not been this great advance, prices would have settled more than they have, conditions of late having been favorable to the development of the lowest possible prices.

It can be observed that there has been a decided change in the temper of buyers in the past few weeks toward a fuller recognition of the fact that costs are higher and that the present minimum prices available in the market are so low as to invite the most serious attention. There is more and more of a disposition to take advantage of the conditions and plan for larger operations. Time is required for conviction, and even then there is often delay before final action is taken, but the molding of sentiment goes on and each week brings evidence that the time of freer embarkation into new ventures is approaching.

Sentiment has had to pass through these stages of development every time steel demand and prices have rounded a low point. It is a natural course, identical on all occasions in its general aspect and different each time in many of its details.

There are always drags upon the improvement in sentiment. Some of these require the development of more favorable conditions to sweep away, while other drags are simply those due to misapprehension, to the waiting for things to occur which are not going to occur. These drags disappear when it is realized that there is no occasion to wait for the expected event. One of the drags at the present time is the waiting for the railroads to buy enormous tonnages of steel rails and other steel commodities. The steel trade is not dependent upon the railroads as it once was. The railroads do not consume by any means as large a proportion of the total steel output as they once did. Their tonnage requirements have grown very greatly, but the tonnage requirements of other lines of consumption have grown still more rapidly. There can be heavy steel consumption without the railroads taking the same lead as formerly in point of tonnage, and as that fact comes to be realized more generally, one of the drags upon reviving confidence will be removed.

Another drag has been in process of making for some time, but of late its force has shown a tendency to diminish, and that is the waiting on the tariff. It has been so easy to follow the precedents of the last two spells of tariff change, and assume that nothing can be done until the tariff is out of the way. The present revision is distinct from its predecessors both in the forces which instigated it and in the manner in which it is being carried out. The impression has been that business could not revive until the tariff is settled, and that immediately after that event a striking change would be witnessed. It is coming to be recognized that both assumptions are erroneous. Business is really reviving in many quarters already, and the opinion is gaining ground that there will be no marked change immediately after the tariff bill is signed. Thus business is avoiding the chance for a disappointment which a month ago it was courting. The drag of waiting for the tariff is disappearing, and with the more general appreciation of the fact that, as selling prices in the steel trade are low as compared with present production costs, there is ground for a steady and healthy revival in tonnage.

A FREE TRADE ARGUMENT.

Editor THE IRON TRADE REVIEW:

The letter of William R. Perrin & Co., which appeared in a recent issue of THE IRON TRADE REVIEW, was significant of the feeling toward the so-called "protective" tariff entertained by a large and rapidly multiplying number of American manufacturers. True, the letter contained expressions which were, from the standpoint of the statistician, inexact;

but that same want of precision emphasized most admirably the state of mind which has been widely engendered by the crass greed displayed in the fixing of tariff schedules. Nor did the loosest statement in that letter approach the wantonness of misstatement which is a perennial characteristic of the general argument in support of the "protective" tariff principle.

I do not wish to engage in controversy on the tariff question, but I am more than willing to express my opinion with regard thereto, if only for the sake of performing the simple duty of a citizen of the republic—the duty, namely, of taking part in the shaping of the government under which we live.

There is abundant cause for expression more forceful than accurate against the tariff. When a man wakes up to the fact that, for a long period of years he has been duped and plundered, his opening remarks are not apt to be exactly scientific. If, indeed, they prove to be even printable, that is as much as should be required of him. And I have lately heard expressions on the tariff question, by erstwhile "high protectionists," which were not printable. Although Pennsylvania may still stand pat, yet the United States, it will be found, cannot be fooled all the time.

It has been said that "northern sellers of pig iron are now, probably, disposing of their product at just about cost." I beg to state that even if this guess were true, still the fact would not, in itself, justify a tariff to protect these interests against a still lower price. There are elements of cost which arise directly from the existing tariff, and which would disappear in the absence of a tariff. Furthermore, pig iron attained a price so high during the boom period lately past that economically inaccessible sources of supply (under normal conditions), were opened up—sources that would have been economically inaccessible for years to come, but for the alternations of boom and depression generated by methods which would be impossible in the absence of excessive tariff rates. Is the public under any sort of obligation to pay a price for its iron supply that will afford a profit to sellers of such product? Most assuredly not.

There are furnaces in the south that produce at so low a cost that the Birmingham price might fall to the extent of several dollars per ton below that of today and still leave a good margin of profit to the producer, given that he be not under tribute to somebody for access to the sources of supply.

The public has the right, in justice, to draw its entire supply from the sources that can produce at the lowest cost; and no man has the right, in justice, to demand a price-advance that will support in operation any source of supply less favorably circumstanced. Such sources of supply are economically inaccessible, for the time being, and therefore deserve no present consideration whatever—they are, properly, out of the question.

A high tariff on iron enables producers favorably located to pocket an enormous profit, and supports the operation of plants otherwise inaccessible, affording some profit to the operators thereof—entirely at the expense of the American consumer.

EDWARD HOWELL PUTNAM.

Moline, Ill., April 14.

The plan of our Moline correspondent, based upon familiar and plausible but fallacious arguments of the free trader, would result in the dismantling of nine-tenths of the blast furnaces of the country and, in order to obtain iron for his foundry, Mr. Putnam would be at the mercy of foreign blast furnace owners. There would be a pig iron shortage and higher prices would prevail for the iron than have been paid in this country for many years except in periods of greatest prosperity. The proposed reduction of $1.50 per ton on pig iron ought to satisfy even our free trade friends.

A New Magazine.—*Industrial Engineering* is the name of a new magazine devoted to the interest of works managers, engineers and superintendents. The first number contains 134 pages, 4¾ x 8 inches, and some of the articles are as follows: "Principles of Heating and Ventilating a Modern Building;" "Elasticity and Fatigue of Wrought Iron and Steel;" "A Test of a Terra Cotta Tile Column;" "Feed Water Heaters as Purifiers;" "The Plant of the Detroit Lubricator Co.;" "Employer, Employe and the Community." The new journal is published at Pittsburg by the Industrial Engineering Publishing Co., of which the officers are: F. C. Harper, president; A. H. Lazare, vice president, and G. A. Harwood, secretary and treasurer. The managing editor is Robert Thurston Kent.

Rebuilding Its Stack.—The Hudson Iron Co., 100 Broadway, New York, is making good progress in rebuilding its Secaucus furnace. Foundations are in for the new stack and four large Foote stoves, besides which an additional blowing engine and four Wilcox boilers are being installed. When completed, the furnace will have a daily output of about 225 tons. About 2,000 feet of trackage is being laid to a large dock now under construction, from which an extremely low water rate is available to the New York district and Sound points. Heretofore the furnace has had only rail facilities. The company is operating its Forest of Dean ore mines to capacity, shipping the product to various eastern furnaces.

Testing Society Meeting. — The twelfth annual meeting of the American Society for Testing Materials will be held at the Hotel Traymore, Atlantic City, N. J., from Tuesday to Saturday, inclusive, June 29 to July 3. The fifth congress of the International Association for Testing Materials will be held in Copenhagen, Sept. 7 to 11.

IMPORTANT DEVELOPMENTS IN BITUMINOUS GAS PRODUCERS.

It has been generally known for some time that the Westinghouse Machine Co., Pittsburg, has been carrying on extensive experiments in the line of bituminous producers for power purposes, and announcement is now made that the company has brought to a conclusion these experiments, which have extended over a series of years and that it is prepared to furnish producers suitable for gasifying the usual grades of bituminous coal. The experiments have covered a large number of different types, both of producers and of auxiliaries, and have been carried out with full sized apparatus. The past year and a half has been devoted to the trying out of a type which the company is now prepared to put upon the market, and the drawing of the fire after the producer had been in continuous operation for over a year was made the occasion of a demonstration before a number of government officials and engineers from various parts of the country. An examination of the entire apparatus showed it to be in first class condition, the producer lining practically intact and in condition for further continued operation. The piping leading to the engine showed no deposits of tar or lampblack, and it is stated further that this piping had not been examined for about two and a half years previously. The bugbear of all experimenters with bituminous coal producers has been the formation of tar, but the company announces that the demonstration has shown the entire absence of tar in the gas. The Westinghouse plant uses no tar extractors, as tar is not formed, and merely employs a static washer of small size in the place of the usual coke scrubber. A rotary exhauster is used to draw the gas from the fuel bed and deliver it to the engine at a definite pressure, and gas holders are not used, as the regulation is entirely automatic. Among the various fuels gasified, some have run as high as 34 per cent moisture, 35 per cent volatile and 15 per cent ash and 1½ per cent sulphur, and an over-all economy of 1.1 pounds per brake horsepower has been obtained, equivalent to a little better than 0.9 pound per indicated horsepower, and the producer efficiency, it is claimed, does not vary more than 10 per cent between full load and no load.

The West End Furnace Co., at Roanoke, Va., went out of blast on April 19.

GREAT SHRINKAGE

In Production of Iron and Steel—Swank's Annual Statistics.

The following table, compiled by the American Iron and Steel Association for its annual report, gives the shipments in 1907 and 1908 of Lake Superior iron ore, the shipments of coke and of anthracite coal, the production of leading forms of iron and steel, the imports and exports of iron and steel, etc.

Articles—Gross tons, except for coke.	1907.	1908.
Shipments of iron ore from Lake Superior	42,266,668	26,014,987
Production of iron ore	51,720,619	.....
Shipments of Pennsylvania anthracite coal	67,109,393	64,665,014
Shipments of Cumberland coal	7,360,336	5,784,591
Production of all kinds of coal	428,895,914	.....
Production of coke, in net tons	40,779,564	.....
Shipments of Connellsville coke, in net tons	19,029,058	10,700,022
Shipments of Pocahontas Flat Top coke, net tons	2,314,938	1,819,314
Production of pig iron, including spiegel. and ferro.	25,781,361	15,936,018
Production of spiegeleisen and ferro-manganese	339,348	152,018
Production of Bessemer steel ingots and castings	11,667,549	6,116,755
Production of open-hearth steel ingots and castings	11,549,736	7,836,729
Production of all kinds of steel ingots and castings	23 362,594	14,023,247
Production of Bessemer steel rails	3,380,025	1,354,236
Production of open-hearth steel rails	252,704	567,304
Production of all kinds of rails	3,633,654	1,921,611
Production of structural shapes, not including plates	1,940,352	1,083,181
Production of iron and steel wire rods	2,017,583	1,816,949
Imports of iron ore	1,229,168	776,898
Exports of iron ore	278,608	309,099
Imports of iron and steel, foreign value	$38,789,851	$19,957,261
Exports of iron and steel, home value	$197,066,781	$151,113,114
Miles of new railroad built in the calendar year	5,499	3,214
Tonnage of iron and steel vessels built, cal. year	436,183	221,710

The percentage of decrease of leading products in 1908 compared with 1907 were as follows:

Production of pig iron	38.1
Production of Bessemer steel	47.5
Production of open-hearth steel	32.1
Production of all kinds of steel	39.9
Production of all kinds of rails	47.1
Production of structural shapes	44.1
Shipments of Lake Superior iron ore	38.4
Shipments of Connellsville coke	43.7
Locomotives built, total number	70.0
Locomotives built by Baldwin Works	76.8
Cars built, total number	75.1
Number of iron and steel vessels built	36.9
Tonnage of iron and steel vessels built	49.1
Miles of steam railroad built	41.5

In commenting on these statistics, General Manager Swank says:

"Never in the history of the American iron trade has there been relatively so serious a shrinkage in one year in the aggregate production of iron and steel as occurred in 1908 in comparison with 1907. In 1908, also, both our imports and exports of iron and steel materially declined as compared with 1907. Our exports amounted in value in 1908 to $151,113,114, as compared with $197,066,781 in 1907, and our imports amounted to $19,957,261, as compared with $38,789,851 in 1907.

"Now as to prices. Preceding the shrinkage in production in 1908, and even before the panic in 1907, there was a decline in the prices of most iron and steel products, which had risen in the latter part of 1906. This rise in prices in 1905 was continued into 1907, but in March of that year the prices of pig iron began to yield and continued weak until the panic of October, when they broke badly. In July, 1907, the prices of some finished products were shaded, and thereafter until the panic they continued to be shaded. Prices of steel rails and of one or two other products were maintained. When the panic came strong and influential efforts were made to maintain fair prices for iron and steel, which were then not high, the United States Steel Corporation leading in this movement, the theory being that the cancellation of orders and the general shrinkage in business following the panic would naturally lead to a life-and-death struggle for orders unless this tendency were promptly checked. This was done and demoralization in prices was prevented, as well as a reduction in wages which would have followed deep cuts in prices. From every standpoint the policy adopted was wise and just, and it was beneficial. Nobody was injured by it. All through 1908 the iron trade passed in safety through a great crisis, although suffering severely from a scarcity of orders. The wages of the workmen who were employed were maintained."

CONTRACTS FOR MOTORS FOR GARY PLANT.

The contracts for the driving motors for the new 60-inch, three high universal plate mill and the 26-inch axle mill for the Gary plant of the Indiana Steel Co. were awarded to the General Electric Co. The motor driving the plate mill will be the largest ever built and will be capable of developing 6,500 horsepower or 500 horsepower more than the large motors in the rail mill. The general specifications for this unit call for a two-speed motor wired for operation with 28 or 56 poles, developing 6,500 horsepower at 107 revolutions and 4,500 horsepower at 53½ revolutions. It will operate on a three-phase, 25-cycle current at 6,600 volts. The plates will be rolled down from the ingots in 17 passes.

The axle mill motor is to be a 14-pole, 500-horsepower, 214-revolutions per minute, 6,600-volt, three-phase, 25-cycle, variable-speed unit.

At a meeting of the Association of American Steel Manufacturers, composed of technical representatives of the leading iron and steel works of the United States, which was held at the Fort Pitt hotel, Pittsburg, April 17, the present officers were re-elected for the ensuing year as follows: President, W. A. Bostwick, Carnegie Steel Co., Pittsburg; vice president, A. A. Stevenson, Standard Steel Works Co., Philadelphia; secretary, Jesse J. Shuman, Jones & Laughlin Steel Co., Pittsburg. It was reported that the movement to standardize and make uniform the various gages now used on iron and steel material was progressing favorably. Other technical matters were discussed.

The Engineers' Club, of Youngstown, O., organized by electing these officers: President, William Wilson; vice president, H. L. Patterson; secretary, R. N. Colborn; and treasurer, John Hunter. Trustees: Ett Smith, E. H. Beil and Eugene Kirk.

In March, 82 sail and steam vessels were built and officially numbered in the United States, 75 of them being of wood and seven of steel.

EARNINGS INCREASED

Since Prices Were Reduced—United States Steel Corporation Report.

At the meeting of the directors of the United States Steel Corporation, Tuesday, the regular quarterly dividends of 1¾ per cent on its preferred stock, and ½ of 1 per cent on its common stock were declared. The directors re-organized by electing the retiring officers.

The United States Steel Corporation reports for the quarter ended March 31 last, net earnings $22,921,268, against $26,225,485 for the quarter ended Dec. 31, and $18,229,005 for the corresponding quarter of 1908. The surplus on March 31, after the payment of all charges and dividends, was $3,026,674, against $5,142,451 for Dec. 31, and $7,865 for the quarter ended March 31, 1908. The unfilled orders on March 31 were 3,542,595 tons, compared with 3,603,527 tons on Dec. 31, and 3,765,343 tons on March 31, 1908. The following table shows the monthly net earnings for the first quarter of the past three years:

	1909	1908	1907
January	$7,262,605	$5,052,743	$12,838,703
February	7,665,336	5,709,428	12,145,815
March	7,989,327	7,466,834	14,137,974
1st Quarter.	$22,921,268	$18,229,005	$39,122,492

The preferred dividend is payable June 1. Books close May 7 and re-open June 2; the common dividend is payable June 30. Books close June 10 and re-open July 1.

The following table is a comparison of the operations in detail for the quarter ended March 31 with figures for corresponding quarter of the previous year:

	1909.	1908.
Net earnings	$22,921,268	$18,229,005
Sinking Fund Subsidiary Company Bonds	272,533	291,518
Depreciation and Res've	3,463,666	1,771,227
Total	$ 3,736,199	$ 2,062,745
Balance	19,185,069	16,166,260
Interest on Bonds	5,939,208	6,000,987
Sink'g Fund U. S. Bds.	1,372,755	1,310,976
Total	$ 7,311,963	$7,311,963
Available for Dividends	11,873,106	8,854,297
Preferred Dividend	6,304,919	6,304,919
Balance for Com. Div.	5,568,187	2,549,378
Common Dividend	2,541,513	2,541,513
Surplus	3,026,674	7,865

In carrying out the policy of carrying its own insurance the company now has on hand as a special insurance reserve $671,093. In its welfare work among employes it has expended $73,750 and in the past year set aside $250,000 as a nucleus for an employes' pension fund. Last year also it contributed $50,000 to an employes' benefit association with which 75 per cent of its employes allied themselves within the first 90 days. During the year the average number of employes was 25,679. The extension of the company's business into Canada and the establishment of shops at Hamilton has been attended with marked success.

The results for the quarter ended March 31 last compare as follows with the quarter ended Dec. 31, 1908, and with the quarter ended March 31, 1904, which last mentioned quarter was the smallest in the history of the corporation up to that time, and reflected the depression of 1903-04:

	Mar. 31, 1909.	Dec. 31, 1908.	Mar. 31, 1904.
Net Earnings	$22,921,268	$26,225,485	$13,208,886
Charges and Depreciation	3,736,199	5,213,822	1,945,645
Balance	19,185,069	21,011,663	11,263,241
Charges and Adjustments	7,311,963	7,022,780	6,815,442
Balance for Dividends	11,873,106	13,988,883	4,447,799
Preferred Dividend	6,304,919	6,304,919	6,304,919
Balance for Common Dividend	5,568,187	7,683,964	1,857,120*
Common Dividend	2,541,513	2,541,513	.....
Surplus	3,026,674	5,142,451	1,857,120*

* Deficit.

There was no dividend on common stock for the quarter ended March 31, 1904.

GREAT NORTHERN ORE

Report for Last Year Shows Addition to Previous Surplus.

The second annual report of the trustees of the Great Northern iron ore properties, covering the fiscal year ending Dec. 6, 1908, has just been issued, showing that the surplus account was increased by $173,824 in that time. The report states that in the future in order to make the fiscal year conform to the calendar year the fiscal year will end Dec. 31, and says further:

During the year the business of the companies, whose stocks are held by trustees, have not been free from the effects of the existing general depression, and in consequence the shipments of ore of the properties of these companies during the season of 1908 fell much below the shipments during the season of 1907, aggregating 1,468,925 tons for 1908, as compared with 3,281,061 tons during the previous year.

Explanatory of the work done by the Great Western Mining Co., guaranteed by the United States Steel Corporation, the report says:

Exploration of the properties leased to it has been prosecuted with vigor. A monthly average of 77 drills has been maintained as against the 40 required by the terms of the lease. Exploration work has been completed on about 3,600 acres of the leased land. None of the properties covered by the lease to the Great Western Mining Co. was put on a shipping basis during the year. Development work, consisting of surface stripping to the extent of approximately 5,500,000 cubic yards, and the construction of yards, tracks, etc., has been conducted on several properties at large expense and in a manner to prepare these properties for mining and shipping large amounts of ore. We are permitted by the Great Western Mining Co. to state that the expenditures for exploration and for development work on the leased properties have aggregated more than $3,000,000. The Great Western Mining Co. paid in January, 1909, the minimum royalty for 1908. The payment was received by the trustees, acting as agents for the lessor companies.

The income account for the year just ended compares with the preceding year as follows:

		Increase.
Dividends received	$1,745,000	$95,000
Interest and miscel. receipts	4,214	4,214
Total interest and dividends.	$1,749,214	$99,214
Expense admin. trust	75,390	7,640
Distributed to ctf. holders.	1,500,000	.....
Total expenses	$1,575,390	$ 7,640
Surplus	173,824	91,574
Previous surplus	82,250	82,250
Total surplus	$256,074	$173,824

Will Launch Freighter.—The new ore freighter Shenango, built for the Shenango Steamship & Transportation Co., Pittsburg, a subsidiary of the Shenango Furnace Co., will be launched with proper ceremonies Saturday morning, May 1, at the Ecorse yards of the Great Lakes Engineering Works. Miss Sarah Chaplin, of Sewickley, Pa., will act as sponsor for the vessel and will be attended by a number of Pittsburg society people. The new freighter will be one of the largest boats of its kind on the great lakes, and will have a rated capacity of 13,000 tons. Its dimensions are: Length, 606 feet; beam, 58 feet; depth, 31 feet. It is expected to be put into commission about June 1 and will run between the lower lake ports and Duluth.

General Electric's Report.—In its report for the year ending Jan. 31, 1909, just issued, the General Electric Co., Schenectady, N. Y., reports profits for the year of $4,802,252. Dividends disbursed during the year amounted to $5,214,026, leaving a surplus of $16,102,836. The total orders received during the year were valued at $42,186,917, the volume of orders running about 70 per cent of the two previous years.

Extensions to Be Made.—The Canadian Sheet Steel Corporation, of Morrisburg, Ont., announces that the refusal of the Canadian government to grant it tariff protection will not interfere with its plans as previously mapped out, which included an extension of its plant. Work is now in hand for the addition of two hot mills and two new galvanizing machines which will be ready for operation in a few weeks.

PROGRAM OF THE FOUNDRYMEN'S CONVENTION.

All indications point to a record-breaking attendance of foundrymen in Cincinnati during the week of May 17 to 22, when the conventions of the American Foundrymen's Association, the American Brass Founders' Association and the Associated Foundry Foremen will be held. The exhibition of foundry supplies and equipment will likewise be conducted in Music hall, under the auspices of the Foundry and Manufacturers' Supply Association. The professional sessions of the American Foundrymen's Association, as well as the Brass Founders' Association will be held jointly in Music hall so that the members of the one organization interested in the professional papers of the other may not be deprived of the information thus obtainable. The provisional program outlined is replete with papers on timely topics of the utmost interest to every foundryman engaged in iron, steel or brass work.

Practically all of the available space devoted to the exhibits in Music hall, as well as the temporary building, has already been reserved, and the large number of operating exhibits will convert this hall into a model foundry. All of the appliances that have made possible the notable progress in molding machine practice, recorded during the past year, will be displayed, and molds varying in weight from a few pounds to 10,000 pounds will be made. By far the most complete line of brass furnaces ever shown will be in operation and many special and interesting demonstrations will be made daily. The provisional program follows:

TUESDAY, MAY 18.

OPENING SESSION, 2 P. M.

Addresses of Welcome and Responses.

Address by L. L. Anthes, president of the American Foundrymen's Association. Address by Chas. J. Caley, president of the American Brass Founders' Association.

Reports of the secretaries and treasurers of the American Brass Founders' Association and the American Foundrymen's Association will be presented, as well as reports of standing committees on "Standard Specifications for Foundry Pig Iron" and the "Prevention of Accidents in Foundries."

TUESDAY EVENING.

A reception will be tendered the visiting foundrymen and their ladies by the Cincinnati entertainment committee at the Hotel Sinton. This will be known as "Get Together Night."

WEDNESDAY, MAY 19.

PROFESSIONAL SESSION, 10 A. M.

Papers of the American Brass Founders' Association.

"The Manufacture of Brass Ingots, Their Uses and Advantages," W. M. Corse.

"The Use of Waste Heat," F. W. Reidenbach.

"The Patent Situation in the United States Respecting Alloys," C. H. Clamer.

Papers of the American Foundrymen's Association.

"The Cost of Steel Melting in Foundries," Dr. Bradley Stoughton. This will be illustrated with lantern slides.

"The Side Blow Converter for Steel Castings and its Operation," J. S. Whitehouse.

"Open Hearth Methods for Steel Castings," W. M. Carr.

"Notes on Air Furnace Construction for Malleable Castings," W. H. Kane.

"The Use of Pulverized Coal for Foundry Purposes," R. K. Meade.

"Molding Machines versus Hand Molding," Geo. Muntz.

"Pattern Shop Equipment," A. N. Spencer. Illustrated with lantern slides.

PROFESSIONAL SESSION, 2 P. M.

Papers of the American Foundrymen's Association.

"The Heart of the Foundry as Seen by the Foundry Engineer," D. S. Hawkins.

"Cores and Core Making," F. K. Cheney.

"Continuous Melting in the Foundry of the Westinghouse Air Brake Co.," S. D. Sleath.

"Continuous Melting," R. H. Probert.

"The Permanent Mold," E. A. Custer. Illustrated with moving pictures showing the production of castings in permanent molds.

"The Practical Value of Chemical Standards for Iron Castings," Dr. J. J. Porter.

"Pyrometry in the Annealing Room," S. H. Stupakoff.

Papers of the American Brass Founders' Association.

"General Principles of Operation of Industrial Pyrometers," C. H. Wilson.

"Notes on Brass Melting," Chas. T. Bragg.

"Melting of Brass Turnings in the Oil Furnace," E. H. McVeen.

THURSDAY, MAY 20.

PROFESSIONAL SESSION, 10 A. M.

Papers of the American Brass Founders' Association.

"Electrolytic Assay of Copper," Geo. L. Heath.

"A System of Distributing Waste Losses in Raw Materials to the Cost of the Finished Product," L. W. Olsen.

"The Tensile Strength of Zinc-Aluminum Alloys," W. D. Bancroft.

Papers of the American Foundrymen's Association.

"A Comprehensive Foundry Production Tally," C. E. Knoeppel.

"Foundry Costs," B. C. Franklin.

"Specifications for Foundry Facings," H. F. Frohman.

"Foundry Transportation Methods," David Gaehr.

"Modern Cupola Practice," J. C. Knoeppel.

"Use of Steel Scrap in the Cupola," C. R. McGahey.

The business sessions of the American Foundrymen's Association and the American Brass Founders' Association, for the election of officers, will be held in separate halls at the conclusion of the morning session.

THURSDAY AFTERNOON AND EVENING.

Boat ride on the Ohio river and barbecue at a noted Kentucky pleasure resort.

(In addition to the papers included in this provisional program, a number of others have been promised, and many interesting questions have been submitted which will be presented for discussion during the professional sessions.)

PERSONAL.

James Lippincott, secretary of the W. Leechburg Steel Co., Pittsburg, has assumed the duties of F. R. Kenyon, vice president and general manager of the company, who recently resigned.

Joseph Schonthal, Columbus, O., has assumed the presidency of the West Virginia Rail Co. at Huntington, W. Va., which operates a light rail mill rolling from old rails.

Frank W. Highberger, formerly of the Carnegie Steel Co., is now with F. N. Armour, Columbia Bank bldg., Pittsburg, sales agent for the Mt. Pleasant Coke Co., and other coke interests.

C. T. Johnston, formerly manager of sales of the Republic Iron & Steel Co. at Cleveland, has assumed his new duties as assistant general manager of sales of the company, with headquarters at Pittsburg, succeeding D. M. Forker, resigned.

STORM DAMAGE

Sustained by a Number of Cleveland Manufacturers.

A violent wind storm, approaching the proportions of a hurricane, struck a portion of the residential and manufacturing district of Cleveland about noon Wednesday, April 21, inflicting damage to property estimated by City Building Inspector Lougee at $2,000,000, and killing six persons. The wind storm entered the city from the southwest, traveling in a straight line across to the northeast, being dissipated in Lake Erie. In its path, which was less than a quarter of a mile wide, it badly damaged a dozen churches, over a score of school houses, from which children were fortunately absent because of the lunch hour, and a large number of residences, apartment houses, etc. Among the manufacturing plants which sustained the heaviest damage, the greater part of which are located in the Central avenue-Pennsylvania railroad district, are the following:

The Cleveland Co-Operative Stove Co.—The foundry laid flat and other portions of the plant damaged so that it may be July 1 before it is restored to normal, the damage being estimated at $40,000.

The Standard Tool Co.—The roofing of the plant generally badly damaged, and especially that of the blacksmith shop and finishing department, the damage being estimated at $10,000. The plant is partly running, but will require several weeks for entire restoration.

The Wellman-Seaver-Morgan Co.—Structural building and machine shop partially wrecked, and the foundry damaged, the loss being estimated at $14,000. The plant is running in part at present.

The National Safe & Lock Co.—Portions of the roof blown off, chimneys and smokestacks dismantled, the damage being estimated at about $2,000. Rebuilding is being done, partly by the employes of the company, and the plant is in partial operation at present.

The Cleveland Furnace Co. sustained probably the heaviest damage of any, two large ore carriers at the furnace being wrecked. It is believed that portions of the bridges may be rebuilt, hence the monetary damage is difficult to estimate.

Beside this damage inflicted, chimneys at various plants in the path of the storm were wrecked.

AMONG MACHINERY MAKERS.

MILWAUKEE.

Allis-Chalmers Plants Busy—Conditions More Satisfactory.

Milwaukee, Wis., April 26.—The announcement that the plants of the Allis-Chalmers Co. are operating at 85 per cent of capacity has been of considerable interest to Milwaukee manufacturers. It seems to be the opinion that this is a general indication of business at most of the leading machinery plants of the city and manufacturers say that this is more than satisfactory, considering the low stage reached at times during the early part of the present year. Now that the spring business is opening fairly well, a feeling of confidence is found that steady improvement will take place from now on. Orders and inquiries are increasing in volume and there is every indication of better things ahead.

"Our bookings of orders are getting larger each month," said an officer of the Allis-Chalmers Co., this week. "April is the best month so far this year and the rate of booking is constantly getting larger. We are securing a great many small and average sized orders. A few of our larger contracts include a 20,000,000-gallon pumping engine for Kansas City, a 12,000,000-gallon pumping engine for Grand Rapids, Mich., and large gas blowing engines for the Illinois Steel Co. The demand for flour milling machinery has been particularly good this spring because of the lower prices for such equipment. The report that we are making the old rate of profits is erroneous. The Allis-Chalmers Co. has cut prices like other firms in this line of business and in accord with price reductions in all sorts of metal goods which have prevailed in the last two or three months. As long as there is competition for orders, the present low scale of prices will continue."

Plans are being completed by Charles J. Poetsch, city engineer of Milwaukee, for the erection of a $45,000 one-leaf bascule bridge to replace the present structure at Cheery street.

J. Herbert Johnson, of Milwaukee, has moved his brass and aluminum foundry to Eau Claire, Wis., where a building was secured at 522 Water street. The foundry will be put into operation as soon as the plant has been remodeled.

Pawling & Harnischfeger, Milwaukee, has been awarded a contract for furnishing a traveling crane to the power house now in process of erection at the new Wisconsin state capitol building at Madison.

Hon. Charles Algernon Parsons, son of the Earl of Rosse, and inventor of the Parsons steam turbine, such as is now in use on the new Cunard liners, Lusitania and Mauretania, was in Milwaukee last week and inspected the plant of the Allis-Chalmers Co., at West Allis.

The Thor & Kabat Gas Engine Co., of Manitowoc, Wis., is considering an offer to locate its plant at Lena, Wis., where a suitable building has been offered. A small foundry would be erected at Lena if the change in location is made.

The Bucyrus Co., of South Milwaukee, has been awarded a government contract for furnishing a steam dredge for the Sunnyside irrigation project, at $28,010.

Greiling Bros. Co. has begun the erection at Green Bay, Wis., of the $160,000 bascule bridge to be placed over the Fox river.

CINCINNATI.

Business is Irregular, Some Companies Faring Better Than Others.

Office of THE IRON TRADE REVIEW, First National Bank Bldg., April 27.

The situation in the machinery market has not changed materially during the past week and business continues irregular. Some shops have enjoyed a fairly satisfactory run of orders, while others have not been so fortunate. On the whole, the situation continues in that waiting condition which has existed for some time. Manufacturers still regard the settlement of the tariff question as having an important bearing in retarding business improvement and feel that the present conditions must be tolerated with as much patience as possible. Representatives of the large electrical and power plant concerns report a number of large propositions under consideration and are directing considerable attention in this direction. This represents something of a change, as several months ago the demand was largely confined to smaller work, such as light capacity motors. Machinery dealers have secured some fairly good orders during the week, which represented the fruition of plans held in abeyance for some time. There is still considerable inquiry which, while not rapidly developing into orders, has had a tendency to keep interest in the market. The shops are running with reduced forces. Some are operating a small force full time, while others are utilizing larger forces and running alternate weeks.

It is believed that a number of the operatives, instead of remaining idle, have secured work in the neighboring manufacturing towns in automobile shops. There seems to be no large surplus of good mechanics or machinists seeking employment.

The Acme Machine Tool Co. is now installing some machines in the small shop of the Cincinnati Planer Co., and about ready to send their patterns to the foundry. The company will manufacture screw machines and turret lathes, and will likely have some machines through before the first of July. The Cincinnati Planer Co. is having some of its small work done in its new shop at Oakley.

The M. L. Andrew Machinery Co., which recently secured property for a new factory site in the machine tool district, has decided to defer building until fall.

The local office of the Allis-Chalmers Co., represented here by F. C. Colwell, has moved into new quarters at 1603 First National Bank building.

The John B. Morris Foundry Co. notes an improvement in the inquiry for machine tools. Orders were received this week from Sweden and from Austria-Hungary. This is encouraging, as but little foreign business has been reported recently.

The local committee which is preparing to entertain the guests and representatives of the American Foundrymen's Association convention, is actively engaged in the preparations for this event and meetings will be held at the Sinton hotel each Wednesday at 2 o'clock from this time forward until the convention.

A. W. Williamson, of the Peck & Williamson Co., sails for Europe on April 29, and will be tendered a complimentary dinner at the Business Men's Club by his friends and business associates.

NEW YORK.

Improvement in Sentiment, but Orders Do Not Increase.

Office of THE IRON TRADE REVIEW, Room 1005, No. 90 West St., April 27.

The local machine trade at present is contenting itself with only a sentimental improvement. So far as actual business is concerned, bookings are not

heavy and with a good many interests are lighter than during the first half of the month, but in point of inquiry the volume of activity continues to grow better and there is now a very large amount of business under negotiation. Nothing further has been heard from the Lackawanna and Clinchfield inquiries, circulated some months ago, and there is still some buying to be done by the Maxwell-Briscoe interests, principally for western requirements. Practically all the current selling is in small lots or involves only a single machine. Prices show little change, the weak spots being the same as heretofore. A good volume of export inquiry is being figured on by makers of industrial cars; very few orders are developed from the numerous propositions now pending. The same is true of power plant equipment and, in general, of almost all allied lines.

Manufacturers of nuts and bolts held a meeting in this city a few days for a comparison of views on trade conditions, and another meeting will be held in Cleveland shortly. No change in prices has been made recently and none is considered probable, as the present selling level is declared to be rock bottom, below which manufacturers can go only at a distinct loss. Following the cut in wages announced some little time ago, this interest at certain points is involved in labor difficulties which are curtailing production.

Joseph T. Ryerson & Son, Chicago, announce the removal of their New York offices from 74 Broadway to the Hudson Terminal building, 30 Church street.

The Gould Storage Battery Co. has recently placed an order with the Ridgway Dynamo & Engine Co., through its New York representative, the Spooner-Mathewson Co., for a large booster set and exciter set to be installed for the Detroit River Tunnel Co. These machines will be used in connection with the storage battery plant operating the trains of the Michigan Central railroad under the Detroit river. The storage batteries are being installed to equalize the loads on the power plant, charging when the traffic is light and discharging when it is heavy, and maintaining a practically constant load on the main generating plant. This system makes it possible to carry with a comparatively small plant the extreme loads occasioned by several trains running at the same time. The peak loads will be very heavy, and the booster will therefore be required to handle extremely heavy overloads for short intervals.

A boiler shop, 75 x 150 feet, is to be built by L. H. Focht & Son, Reading, Pa., at a cost of about $10,000.

Contracts have been let for the erection of a large gas plant for the Providence Gas Co., Providence, R. I., to have a capacity of 3,000,000 feet per day. The proposition is expected to involve an expenditure of $1,000,000.

The Baldwin Locomotive Works, Philadelphia, report a considerable improvement in business, noting among others an order for 75 locomotives for a western line.

The plant and personal property of the bankrupt New Jersey-West Virginia Bridge Co., Manasquan, N. J., will be offered for sale at noon of May 3 at the plant. James D. Carton, Asbury Park, N. J., is trustee.

PITTSBURG.

Heavy Machinery More Active—Machine Tools Dull.

Office of THE IRON TRADE REVIEW,
510 Park Bldg., April 27.

Heavy machinery is more active and some nice contracts as to size have been lately placed, although low prices have played an important part in the movement. The inquiry is keeping quite brisk and a number of projects are in the estimating stage, including another large new tin mill which is yet only in tentative form. Figures have been taken on several finishing mill propositions.

The machine tool trade in the Pittsburg territory continues rather dull, although there is some business under negotiation by manufacturers who are overhauling their plants and putting them in first class condition for steady operations later. Reports from beyond the Pittsburg district are to the effect that some improvement is being noted and a fair run of orders is appearing. Pig iron makers state there is a more consistent buying by machine tool makers than there has been in months, although this demand is confined to rather small tonnages. Prices in tools are quite uniform and the manufacturers are not disposed to make concessions.

F. H. Kindl, consulting engineer, Bakewell building, Pittsburg, who is the American representative of the Menne oxygen melting process of German invention, is making installations of this apparatus at various blast furnace plants in the country. The process is especially applicable to the opening of chilled tap holes or blast tuyeres. Among the furnaces where installations have recently been made are the Wickwire Steel Co., Buffalo, and the Lucy plant of the Carnegie Steel Co., Pittsburg, and a contract has also been closed with the Stewart Iron Co., Sharon, Pa.

The Westinghouse Machine Co., East Pittsburg, Pa., reports an encouraging increase of orders the first half of April as compared with March. Considerable business in steam turbines and steam and gas engines has been booked and a number of inquiries are pending. Among some of the prominent contracts which the company has lately received, is that for a 15,000-horsepower steam turbine for the City Electric Co., San Francisco, which will be the most powerful machine of its kind west of the Mississippi. The Saginaw & Flint Railway Co. of Michigan has contracted for a 1,150-horsepower turbine and the Alaska Treadwell Gold Mining Co., San Francisco, has ordered two 1,000-horsepower machines of similar type. The East Pittsburg shops are now working upon an order for a 5,000-horsepower steam turbine for the city of Detroit and a machine of the same size for the Nichols Copper Co. of Laurel Hill, L. I.

The Ambridge Heat, Power & Light Co., Ambridge, Pa., capitalized at $150,000, has taken out a charter to manufacture gas and electricity to be supplied for heat, lighting and power. The incorporators are F. T. Heberline, E. G. Schell and John Reed Miner, all of Ambridge.

The foundry of the late William Mann, Martins Ferry, O., has been purchased by James H. Beans, of that city, who will continue to operate the plant. Mr. Beans was formerly secretary and manager of the Center Foundry & Machine Co., of Martins Ferry, and has severed his connection with that company. The Mann foundry is one of the old-time plants of the Ohio valley.

The Washington, Pa., board of trade has announced that the plant of Meurer Bros., of Brooklyn, manufacturer of oil holders and tin plate products, will be located in that city. The vacant plant of the Railway Steel Springs Co. is to be utilized.

The announcement is officially made by the Phillips Sheet & Tin Plate Co., Clarksburg, W. Va., that the company has just started the erection of eight hot mills and 12 cold mills at Holiday's Cove, W. Va., and that President E. T. Weir, of the Phillips company, will be in direct charge of all matters pertaining to the construction of the plant.

PROFIT SHARING DISCUSSED AT THE METAL TRADES CONVENTION.

At the recent convention of the National Metal Trades Association in New York, two papers on profit sharing aroused much discussion. N. O. Nelson, the well known St. Louis manufacturer, spoke in part as follows:

Quite recently profit sharing has received indorsement in high quarters. Theodore Roosevelt, in his last annual message to congress, said that labor should by some systematic plan, become part owner in the capital with which it works. Mr. Ingalls, chairman of the Big Four railroad board, said in his civic federation speech, that the railroads should adopt profit sharing with employes. Andrew Carnegie in his latest book declares that there must come a partnership between labor and capital, that the capital should be owned by those who use it, sharing profits. In the last annual congress of profit sharing concerns in Great Britain, former Minister Balfour made a statesmanlike argument for the system.

Profit sharing is a distinctive term for a systematic division of general profits with the entire body of employes in proportion to their wages and in a fixed proportion to the capital. Not necessarily, but usually and properly, the dividend to wages is capitalized and paid in the stock of the employing corporation. Out of the net profits, interest is allowed at bank rate on the net capital and the remainder is divided by equal percentage on the wages and the capital, or on the wages and the interest, or a compromise between these two.

It is essential that the proportions be announced in advance, that all regular employes of whatever grade be included, that no new conditions be imposed and that the terms be sufficiently liberal to yield a respectable dividend. There is no change in the plan of business until it comes to disposing of the profits. There is neither right nor inducement given to interfere or criticize.

The contingent interest in the profits is a constant influence toward care, industry and good faith. When the wage earners become stockholders and receive cash dividends on their stock, they are doubly interested. These definite advantages, besides increasing the efficiency of the existing force, tend to draw and retain the better class and eliminate the inferior.

It is a familiar practice to share profits with heads of departments, but these are less in need of stimulus than the common employes. The business heads are energetic and attentive by nature, they have promotions and elastic salaries in view. Those of the common mass have little or none of this to inspire them, and there are influences to make them indifferent or antagonistic. Making a clerk or mechanic or laborer a profit earner and part owner in the property with which he works, makes a man of him, gives him a self interest jointly with the employer, and some sense of responsibility.

Unlike the selling of stock to employes, profit sharing acts automatically and equally on all. If they are fit to employ, they are fit to share. The relative value of their work is fixed by their pay and their dividend is in the same proportion. A fraction only of employes will elect to set aside a part of their wages and obligate themselves to the purchase of stock. They are unfamiliar with such investments, they do not want to deprive themselves of the ready money and they are suspicious of stocks. Profit sharing demands nothing of him but it offers a reward for that which lies in his way to give.

Profit sharing has a record of unbroken success for 65 years in the pioneer house of Leclaire & Co., house painters and decorators in Paris, France, now employing about 1,400 men. Next in age and prominence is the stove and iron works of Godin & Co., of France and Belgium, now employing 2,100 men. Largest of all is the South Metropolitan Gas Works of London, employing about 5,000 men, the workmen owning over a million of its capital. A dozen or more other British gas works have adopted the same plan. The great soap works of Lever Bros., near Liverpool, the woolen mills of Taylor Bros. and Wm. Thomson & Son, the ship yards of Sir Christopher Furness, with a large number of other concerns great and small in Great Britain and on the continent, are substantially profit sharing ones.

Profit Sharing Adopted in 1886.

In my own company, we adopted profit sharing in 1886 by paying an equal dividend on salaries, wages and capital, after first paying interest on the capital. In 1894, we began allowing double the rate to wages as to capital. In 1905 we allotted all the profits in excess of 6 per cent on capital, to the customers and the employes, and this is now the plan. The customers and employes own somewhat over one-half million dollars capital and one-half million dollars surplus. The dividends for the last four years have averaged 22½ per cent on salaries and wages and 36 per cent to customers on the gross profits of their purchases. The business expenses have declined more than one-fourth in proportion to sales and we believe the effectiveness of labor is much above the ordinary.

For a number of years following the panic of 1893, we paid no dividends and there was no instance of complaint. In midsummer of the panic, we called a meeting of all the employes and explained that we could better keep running full if we were accommodating to the customers and that this could be materially aided by their agreeing to a cut in wages and salaries of 25 per cent until times became easier. The suggestion was adopted without any objection or a dissenting vote. The reduced wages were in effect for three months, until we restored them voluntarily.

Losing years rarely occur to prosperous concerns, and only prosperous ones have profits to share. The theoretical criticism that losses must be shared if profits are, is met by the proper practice in any business of setting aside a surplus fund out of which any loss will be taken and not out of the capital. As the surplus has been taken out of the profits before the annual division, labor has contributed its portion and thus makes good its share of the loss.

It should, however, be observed that profit sharing is not a doctrinaire or academic theory, but a practical way of enlisting the profit-making capacity of the entire force and thus assuring against loss. In 24 years of it, we have had no losing year.

Profit sharing is a peace measure but it is not a guarantee against strikes. There can still be differences but they will be rare. There are still the class influences but they are weakened. For these reasons, profit sharing is not favorably regarded by union leaders. In our 23 years of continuous experience, we have had no instance of attempted interference or criticism or assertion of prerogative by right of stock holding or profit sharing, neither

has there been any instance of difference arising between the employes and the management. There have been strikes by order of outside union authority and for infraction of union apprentice rules and boycotts. These strikes we have always resisted successfully, and at last gave the option to each employe of dividend and non-union or union and no dividend. Within six months there remained only three union cards in our entire force, except in one trade with about 20 men dependent on the building trades council, and the teamsters in St. Louis. These men recognized their dilemma and make no complaint, nor have we. Incidental to our profit sharing and the betterment of labor's conditions, we have for 19 years been using a portion of the profits and the employes a portion of their wages in building the town of Leclaire and workmen's homes. A net result of this combination of work, play, homes and attractive surroundings is that we have found no need of policemen, rules or boss. By the average of other towns and cities, we should have had to date, 250 arrests, whereas we have had none. All of our young people remain, invariably going to work when out of school. We have less than half the average death rate, high marriage and birth rates and no divorce rate.

Profit sharing needs to be instituted in a broad and liberal light and to be conducted with patience and due regard for established traditions and prejudices. When so practiced, it will not fail to justify the faith and hope of its projectors and do its share in promoting peace and good will between employers and employed.

MR. CRANE'S ADDRESS.

In his address on the subject of profit sharing, R. T. Crane, president of the Crane Co., Chicago, said in part:

Some 40 years ago the Hon. John Bright, of Birmingham, England, took a leading part in discussing the various methods for profit-sharing, or co-operative industry, then advanced. In this, as a manufacturer, doubtless he was influenced by existing differences between labor and capital, which were shown in frequent strikes and lockouts and a general attitude of suspicion between employer and employe throughout the industrial centers of England.

Mr. Bright believed that some rational system of profit-sharing, some working method of co-operation between capital and labor, would reconcile these differences, allay these suspicions and give to industrial activities a greater steadiness. The outcome of this agitation was that a number of business firms in England adopted a system of profit sharing something like this:

Pay first to labor its current market value; second, pay to capital a fair interest; third, divide the remaining profit, if any, into two equal parts, one part going to labor and the other to capital.

The plant seemed to meet with general favor. I became deeply interested in the subject and wrote to Mr. Bright for full details of the scheme. From the information obtained I worked out what seemed to me to be an application of the English experiment to my own conditions and gave it a trial in my own business. At the expiration of two years the plan was abandoned. It did not work out satisfactorily, either to my employes or myself. After careful inquiry among my foremen I could not find any evidence that my profit-sharing was making my workmen either more industrious or more faithful to my interests.

Even in England it soon developed that the workmen themselves came to oppose the scheme, doubtless on the ground that it tended to increase production—a condition which seems to be the chief stumbling block in the way of any scheme of this character. Perhaps it is only just to say here that the experiment I made was not a fair trial, as, in my opinion, it requires a good deal of time and a considerable amount of enthusiasm on the part of foremen to make any experiment along these lines effectual.

My next experiment in this line was on an entirely different basis, but with the same objects in view. I put in operation a system by which our workmen were given an opportunity to buy Crane Co. stock to an amount equal to their yearly salary. This, of course, gave the man who took advantage of it some share in the profits of the business, while at the same time it required that they should put up their money with that of the company in order to share in the company's success.

A Partial Failure.

By this method Crane Co. undoubtedly obtained some advantage in the closer co-operation of those of our employes who became stockholders, but the experiment has not been all that we desired or expected, for the reason that our workmen did not, to any large extent, avail themselves of the privilege.

It is difficult to explain why they did not; but my opinion is that, in the first place, many of them were unable to get as much as $100 to pay for a share of stock. Further, I imagine, that many of those who could have bought stock preferred to put their savings into homes for themselves rather than to invest it in any other way—particularly in a manufacturing company where they do not seem to see as much security as in real estate. The average workman is ready enough to share in the profits, but not to share in the risks of industrial or commercial enterprises.

My third experiment—Crane Co.'s present system of profit-sharing—has been in operation for about eight years. It consists simply in the company making an out-and-out gift once a year to all of its employes who do not in any other way share in the profits of the company—such as stockholders, officials, etc. The amount thus distributed among our workmen is determined by the success of the company for the year just past. For the first two or three years this amount was equal to 5 per cent of the annual earnings of each employe; since then, and up to the present, we have been able to give each employe 10 per cent of his annual earnings.

This amount is distributed about Christmas time, and the company prefers to refer to it as a "Christmas present." There are no restrictions as to length of service, position, etc. The employe who has been in the company's service a month is treated the same as the employe who has been with the company many years.

If an employe leaves the service of the company of his own accord or is dismissed for cause, he thereby forfeits his share of the profits—or of the gift—for that year. But if an employe is laid off, or his services dispensed with through no fault of his own, he is considered to be entitled to his share of the year's distribution up to the date of his leaving.

I am under the impression that this is as good a scheme as any that can be devised, under existing industrial conditions. The company in no way is bound to continue it for all time; nevertheless, it is my earnest hope that it may be able to do so. I feel that in giving a portion of our earnings to employes in this manner more good will be acomplished than by spending large sums in many other directions.

So much, then, for my own experience in profit-sharing plans. As for the principle itself, I believe in it. I believe that every employer should adopt some rational method whereby he may be in a position to divide some part of his yearly profits with

his employes. Not only is this a good course from an ethical point of view but it is a wise course from the viewpoint of business. Even if from no nobler impulse, enlightened self-interest should prompt us to make this division.

While I may say that the Christmas giving of Crane Co., call it "profit-sharing" if you will—is governed by the spirit of kindliness, the desire to be fair and just, we do not pretend to close our eyes to the fact that this giving pays, that our annual distribution of part of our profits is in the nature of a good investment. Long before another time for giving returns, the gift of the previous Christmas has come back to the company in the way of better service, of greater enthusiasm, of a more coherent working force, and of a more pronounced loyalty to the company and its interests on the part of its thousands of employes.

I believe that the reverse of our policy has equally patent results. The man who is close and niggardly with his employes, who pays not a cent more than the stipulated wage—and often pays that grudgingly—gets but the service he pays for. He does not get loyalty, or enthusiasm, or regard, nor does he deserve to get them.

Principle of Modern Business.

From this, and the plan the Crane Co. actually has in operation, you may see that I am a warm and consistent advocate of profit-sharing as a principle of modern business. As I understand it, the principle is this: if an employer concedes it to be fair and just that his employes have a share in his profits, the employes should be equally willing to concede that they share with him in the losses. I cannot see that with any reasonable system of co-operation the employer is under any great obligation to divide part of his profits with his employes than the employes are to divide a part of the losses with their employer. I consider this recognition of mutual sharing both of gains and losses, the basic principle of any rational system of profit-sharing or co-operation that can be devised.

There is one thing that is perfectly clear regarding all co-operative enterprises, and that is, that they always have failed where they have been new enterprises. At the same time investigation will show that there has been a number of immensely successful profit-sharing enterprises; but I apprehend that they will be found to apply mainly to businesses in which the employers have to depend largely upon the honor and good faith of their workmen—such as, for example, decorators, retailers, etc., where the business necessarily is conducted on the merits of the employes.

I do not think the profit-sharing principle can be applied so well in the case of salesmen selling on percentage, or where employes work on piece work or where the output of the day may be measured easily. Nevertheless it is probable that a reasonable division of the profits would be found to pay in any business.

A word or two regarding the theory of Mr. Bright, that above a certain point profits should be divided equally between capital and labor. I took exception to this at the time it was proposed; I take a strong exception to it now. The chief objection to this theory is that the value of labor to a given industry can be definitely measured, while the value of capital cannot. This is particularly true of most of our modern industrial enterprises in which the invested capital is owned by the actual managers of the business.

Managers' Salaries.

Few, if any, of these managers are drawing salaries commensurate with the skill and energy they put into the management and the responsibility and risks attached to their investments. They have to depend for their compensation upon the profits earned by their capital. The responsibility of labor is in no way to be compared with that of capital and it is a manifestly and equitable proposition that demands an equal sharing in the profits of a business between capital and labor.

I am of the opinion that there never was a time when so much skill and energy, so much brains and experience were put into business as is done today; and no ordinary salary—especially in a large business—would be proportionate to the services rendered by our modern managers.

Surely it is not reasonable to say that the man who has only his capital in a business, the man who has his capital invested and in addition works hard early and late to make his business a success, the man who has just started in business and the man who has been in business successfully for many years, should be required to accept the same percentage of profit on their capital and divide all above that percentage equally with their employes.

For the reasons advanced and because our present plan has brought a gratifying measure of satisfaction both to us and to our employes, I am inclined to the opinion that our method of profit-sharing—that is, a division of profits determined by the employer and based upon the success of the business for the year—is about as good as any that can be devised to meet the conditions under which business in general is conducted today.

In closing this paper I might add that I do not consider a division of profits, or a gift of part of the profits, at the close of the year, as all of a profit-sharing plan. In our own case, for example, we do more than this and I think I am warranted in speaking of these other things as in the nature of profit-sharing.

For instance, we have a pension and sick relief plan for the benefit of our workmen and their families, the whole expense of which is borne by Crane Co. We maintain a physician's office and surgery, a house physician for our men employes, and a woman physician for our girl employes. The services of our physicians and the necessary medicines in case of sickness or accident, are given free to such of our employes as may need them.

Naturally, the expense of this pension and sick relief plan and of our physicians, coming wholly from the company's treasury—and the benefits going wholly to our employes—reduces the company's profits; and to the extent of this reduction and this benefit, the company is sharing its profits with its employes, throughout the year, in addition to the gift of 10 per cent of the salaries and wages of the employes made at the end of the year.

A QUICK JOB OF ENGINE BUILDING.

The large engine for the Tennessee Coal, Iron & Railroad Co., to which reference was made in THE IRON TRADE REVIEW, Feb. 11, has been completed and shipped by the C. & G. Cooper Co., Mount Vernon, O. The engine was for delivery in four months, but this was anticipated by 40 days. The shipment made a complete train of 15 heavy cars. We will give an extended description of this engine in a future issue.

Name Changed.—The excellent journal formerly known as *Charities and the Commons*, published in New York, has changed its name to *The Survey*, and will continue to keep its readers informed as to the live issues and constructive methods of social advance. This journal was instrumental in starting the Pittsburg Survey, and three numbers, giving the gist of the findings, have been published and abstracts have appeared in THE IRON TRADE REVIEW.

IRON AND STEEL RATES

Lower in the United States Than on German Railroads.

Opportunity for comparing the iron and steel rates of this country with those of the government railroads of Germany is afforded in a report of the German iron and steel industry prepared for the department of commerce and labor by its special agent, Charles M. Pepper. The report was prepared in compliance with an act of congress of May 22, 1908, authorizing an investigation of trade conditions abroad. Much of the material contained in this report is being made a subject of comment in the debate now going on in congress over the tariff bill.

The railroad rates on steel products in Germany are, of course, only one of numerous matters bearing on the steel trade which are discussed in the report, but these rates are treated as one of the important factors governing the steel industry in Germany.

The German government, through its control of railways as well as in other ways, has done much to foster the foreign business of the German steel manufacturing concerns, and in comparing the freight rates in that country with those made by our railroads here, the interest in the comparison is heightened by the fact that it affects a trade which is specially favored in Germany, whereas the rates on steel products here are fixed by the railroads without any direct intervention by government authority, and merely in pursuance of the general policy of the railroads of promoting industries by fixing rates which will stimulate traffic.

The Pennsylvania railroad is the typical steel and iron road of the country. Serving as it does the great Pittsburg district as well as other centers of steel production, its tonnage of steel and iron products reaches an enormous total. Its rates on steel and iron have been taken as a basis for a comparison between such rates here and similar rates in Germany. The comparison shows that in most instances the rates in this country are lower than those in Germany on similar products for like distances.

The German scheme of fixing rates on iron and steel products is thus stated in the Pepper report:

"In fixing the transportation rates, ore is treated as primary raw material, the same as agricultural products, and is therefore given the lowest rates in the freight schedules. This treatment has been extended to the ores from the Meurthe-Moselle district in France. Iron and steel products come under special tariffs which have been devised by the government on the principle of encouraging the manufacturing industries."

The following tables, made up from data contained in the Pepper report and from figures obtained from the Pennsylvania railroad, afford a comparison between our rates and those of Germany on steel and iron:

FREIGHT RATES ON IRON AND STEEL PRODUCTS.

		Domestic Rates (Per Ton.) Germany.	U. S.
Cologne to Antwerp ..... 132 miles Duncannon, Pa., to Philadelphia.... 134 miles	Machinery	$2.629	$2.80
	Other manf. steel.....	2.217	1.50
	Billets	1.60	1.50
	Pig iron	1.60	1.15
Dusseldorf to Antwerp..... 115 miles Chester, Pa., to New York..... 122 miles	Machinery	2.441	2.20
	Other manf. steel.....	2.067	1.80
	Billets	1.372	1.80
	Pig iron	1.372	1.40
Cologne to Hamburg ..... 264 miles Johnstown to Baltimore ..... 262 miles	Machinery	3.292	2.80
	Other manf. steel.....	2.568	2.60
	Billets	2.424	2.00
	Pig iron	2.424	1.85
Cologne to Bremen ..... 204 miles Williamsport to Baltimore..... 197 miles	Machinery	2.52	3.00
	Other manf. steel.....	2.04	2.00
	Billets	1.726	1.70
	Pig iron	1.726	1.55
Dusseldorf to Bremen..... 181 miles Wilkes-Barre to Philadelphia..... 185 miles	Machinery	2.256	....
	Other manf. steel.....	1.824	2.00
	Billets	1.696	1.70
	Pig iron	1.696	1.60

Comparison of rates on pig iron shows lower rates here in all the instances cited than for similar distances in Germany. From Luxembourg to Bochum, a distance of 194 miles, the rate is $1.272 per ton, against $1.14 per ton charged here from Erie, Pa., to Etna, Pa., a distance of 212 miles; from Luxembourg to Dortmund, 206 miles, the rate is $1.272, and from Erie, Pa., to Pittsburg, 216 miles, $1.14. The difference in favor of our rates on iron ore is equally striking in the case of other similar comparisons of rates.

In the case of pig iron also, our rates are also lower in most instances for both domestic and export shipments, the slightly higher rate quoted from Chester, Pa., to New York, over the rate from Dusseldorf to Antwerp, for domestic shipments, being more than offset by the fact that the former distance is greater by seven miles. A similar explanation attaches to the rate on billets from Dusseldorf to Bremen, and the only case therefore noted in this table in which the domestic German rate on billets is lower than the rate for a similar distance here is on shipments from Dusseldorf to Antwerp, where the German rate is directly affected by the availability of water transportation on the Rhine between these two points. The rates on machinery and other manufactured iron and steel also afford a number of instances in which the rates here are below the German rates.

Will Import Ore.—Spanish iron ore is to be imported to the United States in larger quantities than has hitherto been attempted, by a new corporation organized at Pittsburg under the name of the Pittsburg Coal & Ore Co. The company proposes to market on an extensive scale Pittsburg gas and steam coal at Mediterranean ports where the Cardiff coal of England is now generally consumed. The sail from American seaboard points is but one day longer than from English ports, and it is claimed that the American coal is sufficiently superior in quality to lead to the expectation of a strong trade being established with southern European consumers. For the "back-haul" of the vessels transporting the American coal, it is proposed to take cargoes of Spanish iron ore and pyrites. The organizers of the company have been assured of a ready market for their ore among American furnace interests, especially in the east, which expect to use this ore more liberally as a mix for enriching non-Bessemer grades. Harry Henderson, of Wilkinsburg, Pa., is president, and William McLay, of Elizabeth, Pa., is secretary of the new company. Offices have been opened at Pittsburg.

Rest Needed.—A delegation of some 25 leading manufacturers of railway supply materials and equipment, representing the Railway Business Association, appeared before the New York senate judiciary committee April 14 in connection with the proposed amendments to the public utilities act. Through O. H. Cutler, president of the American Brake Shoe & Foundry Co., and George A. Post, president of the Standard Coupler Co., a plea was entered for a rest from experimental legislation in railway matters.

SOME DATA ON HIGH SPEED DRILLING

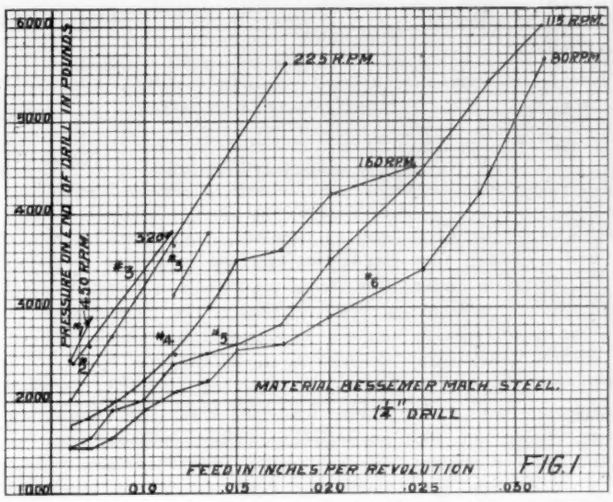
By Geo. E. Hallenbeck.[1]

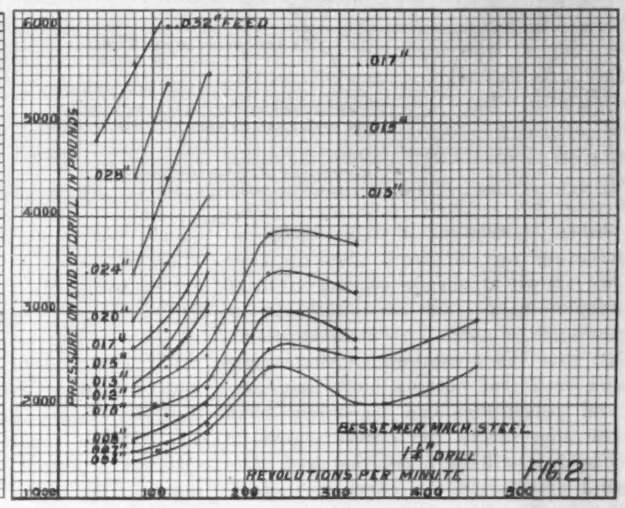
The accompanying diagrams show the results of some tests made with high speed drills, and represent a part of the experiments which have been made at the works of Baker Bros., Toledo, O., with a view to securing the most efficient design of machine for driving medium sized drills, that is to say drills from ¾ inch to 2 inches. These tests have been followed up closely and the improvements suggested by their study have been taken advantage of in designing new machines.

The result is that some of the drilling which has been done on these machines is little short of marvelous, 1⅛-inch holes have been drilled through 4¼-inch blocks of cast iron at the rate of 82/3 seconds per hole or a vertical feed of 29 inches per minute. Several holes were drilled at this speed without necessitating the regrinding of the drill; 15/16-inch holes were drilled through ¾-inch machine steel plate at the rate of 3½ seconds and a great many smilar tests have been made. When we consider that the average punch press when punching 15/16-inch hole in ¾-inch material will make about 20 to 30 strokes per minute, or in other words it will take two to three seconds to punch the 15/16-inch hole which was drilled in 3½ seconds the really remarkable performance stands out more clearly, especially so when it is understood that a number of holes were drilled at this rate without resharpening the drill. The holes were drilled without lubricant of any kind.

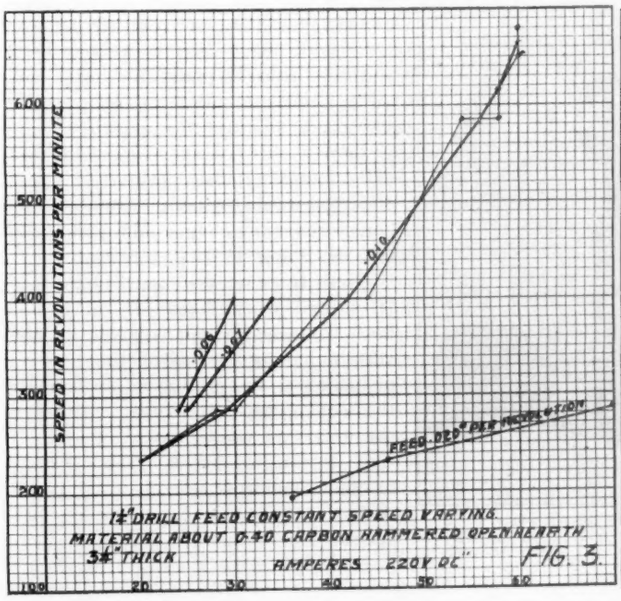
Among other things, it was desirable to know just what the vertical thrust on the spindle was in order to properly design the thrust bearing and feeding mechanism, experience having demonstrated that the load on the feeding mechanism was far greater than it was ordinarily thought to be.

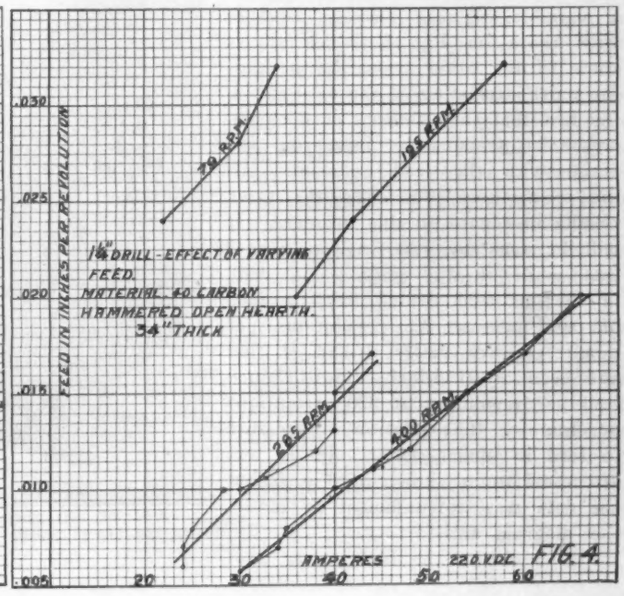
Fig. 1 shows very clearly the result of some of these tests made with a 1¼-inch drill. The variation of the pressure on the end of the drill is

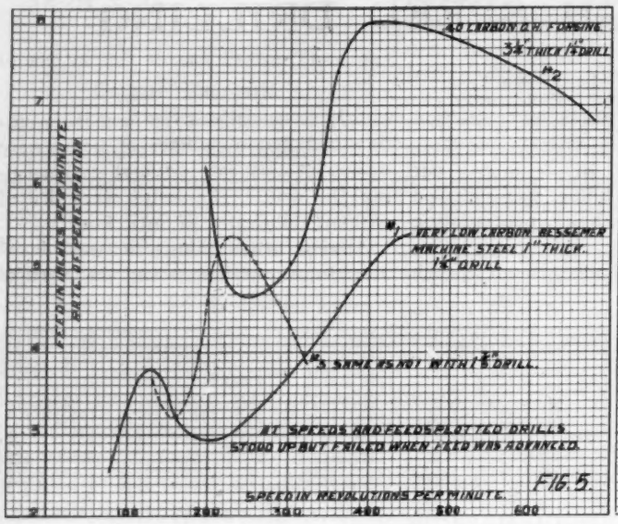




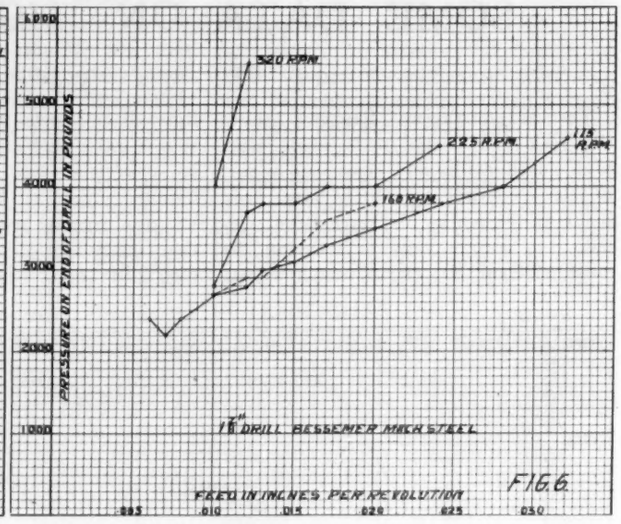
[1]Superintendent Baker Bros., Toledo, O.






AS CARBON O.H. FORGING
3½" THICK 1/4 DRILL
#2
VERY LOW CARBON BESSEMER
MACHINE STEEL 1" THICK.
1/4" DRILL
AT SPEEDS AND FEEDS PLOTTED DRILLS
STOOD UP BUT FAILED WHEN FEED WAS ADVANCED.
FEED IN INCHES PER MINUTE
DRILL IT PENETRATION
SPEED IN REVOLUTIONS PER MINUTE.

F16.5.



F16.6.

shown in relation to a gradually increasing rate of feed. Several tests are shown at speeds varying from 80 revolutions per minute to 450 revolutions per minute. It will be appreciated that the conditions of these tests are such that nothing more than general conclusions can be drawn from the curves. In the curves shown in Fig. 1, it will be noted that as a general proposition the effect of increasing the feed is to increase the pressure of the drill point in a straight line ratio, although the tests made at 80 revolutions per minute would indicate that there was a tendency toward an increasing pressure as the feed was increased. So far as it is possible to observe, there was no great variation in the vertical thrust with the increasing depth of hole after the first ¼-inch had been drilled.

Fig. 2 shows the same series of tests as shown in Fig. 1, but here the feed is held constant and the speed made a variable. These curves, together with those on Fig. 5, which shows some of the other tests, are perhaps the most interesting of the series from the fact that they show a peculiar decrease in pressure by increasing the speed with the feed constant. All the tests show practically the same results in regard to this decrease. It will be seen by referring to Fig. 2 that while it was possible to drill, in the material drilled, with a feed of 0.013-inch at 225 revolutions per minute, it was easily drilled at that and even at 0.015-inch and 0.017-inch feed per revolution at 320 revolutions per minute. The relation of pressure to feed in inches per revolution was attempted to be shown on Fig. 6, but the data was not sufficient to render the diagram satisfactory.

Fig. 3 shows the horsepower consumed and its variation with the variation in speed. It will be noted that at the fine feeds, i. e., feeds of under 0.010-inch per revolution, the amount of power increases in a decreasing ratio as the speed increases, whereas, with a feed of 0.020-inch per revolution just the opposite seems to be true. The ampere readings shown on the diagram represent the total electrical input to the motor, no deduction having been made for either the losses in the motor or in the machine itself, as the data desired is the amount of power which will have to be delivered to the machine. Tests were made of both the motor and machine showing them to be very efficient.

Fig. 4 shows the variation required under constant speed with varying feed; the increase in power consumption being apparently a constant ratio.

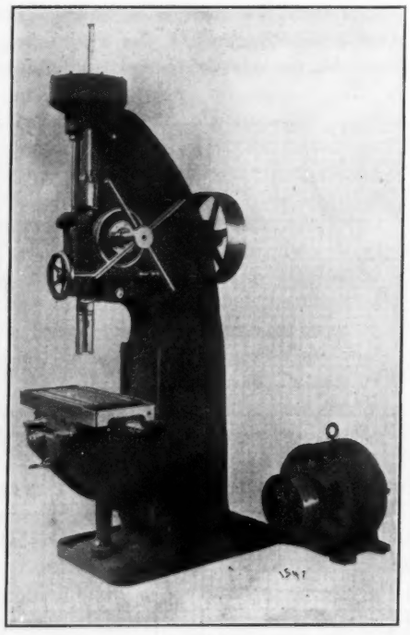


FIG. 7—HIGH SPEED DRILLING MACHINE USED IN TESTS.

Fig. 5 shows the remarkable increase in production which can be secured by increasing the speed. The curves are plotted showing the maximum feed at which the stock was successfully drilled without destroying the drill. With the next higher feed the drill would be destroyed. In order to secure as nearly uniform conditions as possible all of one series of tests were run with the same drill, re-sharpened when necessary. The curve which we are considering shows quite conclusively that the drill would give a greater production without failing at 200 revolutions per minute than it would at 250 revolutions per minute, also that it would give a much greater production if the speed were still further increased to 440 revolutions per minute. This may be an index to the solution of the much mooted question of whether a slow speed and heavy feed or a high speed and fine feed is preferable. It would seem that the adherents of each of the above sides of the question would get into trouble as they began to gradually increase or decrease their speed, and so would quickly come to the conclusion that they could gain nothing by going in that direction.

These tests on drilling, although representing many hundreds of drilled holes, are by no means given as conclusive, having been altogether too few in number to establish permanently the conclusions to which a study of the diagrams would naturally lead, yet they seem to point quite strongly to the conclusion that the best results will be obtained at comparatively high speeds and moderate feeds, it being possible to carry a heavier feed at a

high speed than at the medium feed. It was this fact oft recurring in the writer's tests that led to making the series of tests, results of which are shown in Fig. 5, for the purpose of demonstrating whether such was actually the case or whether the apparent increase was due to other causes.

In conclusion, would add that the majority of the drilling shown on the accompanying diagrams was done with a 1¼-inch drill and the number of times required to sharpen it were very few, showing that the tests were all well within reason.

The machine on which these tests were made is shown in Fig. 7. It is driven by a 4 to 1 variable speed motor, and has a speed range from 70 to 700 revolutions per minute. By providing suitable gearing a wide range of feeds between 0.006-inch and 0.032-inch per revolution is secured on this machine. The machine on which these tests were made was provided with roller bearings; outside of this feature it was the regular high speed drill as now built by Baker Brothers.

WILL FORM LOCAL SECTION OF AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

A meeting of mechanical engineers of Boston and vicinity, held Friday evening, April 16, in the Edison building on Boylston street, Boston, brought together about 150 representatives of the profession. They met to consider a project for the holding of local sessions of the American Society of Mechanical Engineers, many of those present being members of the national organization.

Irving E. Moultrop, engineer for the Edison Electric Illuminating Co. of Boston, was chairman of the meeting, and among those present were Jesse M. Smith and Calvin W. Rice, president and secretary of the national society; Henry F. Bryant, vice president of the Boston Society of Civil Engineering, and professors from Tufts, Mass., School of Technology and Harvard engineering schools, as well as many well known engineers of Boston and nearby cities.

Definite action was taken toward the establishing of a local section of the American society by the appointment of a committee, including Prof. Ira N. Hollis, Prof. Edward F. Miller, Charles T. Main, Irving E. Moultrop and Joseph H. Libby, to arrange for future meetings and submit plans for the new organization. It is expected that the society will be able to assemble a membership of upward of 300 engineers from the city and surrounding places.

ELECTRICALLY OPERATED BRAKES FOR INDUSTRIAL PURPOSES[1]

By H. A. Steen.
(Continued.)

Abstract of paper.[2]

The paper treats of the theory, design and operation of electrically released industrial brakes. After a general introduction of the subject, the various classes of electro-responsive devices, both A. C. and D. C., are taken up and curves are shown. Formulae are given for the kinetic energy consumed by brakes, for the number of revolutions and time required for stopping, for the heat generated and the temperature rise due to the operation of brakes. The relative merits of various friction materials are discussed and the results of tests given. Several different types of brakes are critically examined and formulae and curves given. Twenty-five illustrations are shown.

Discussion.

The brake, Fig. 16, generally has a wooden lining and is lubricated. The "*f*" varies greatly with the kind and amount of lubricant, and the amount cannot be controlled. It also varies with the conditions of the surfaces, which change with wear and heating. A band brake of this type therefore, has a very uncertain retarding torque. The strains on the brake parts and shaft vary greatly and an excessive strain can be expected at any time. As a consequence the brake and shaft must be dimensioned much heavier than for the normal torque. Another fact which makes this brake more bulky and the necessary applied force larger, is that the lubrication decreases "*f*." If "*f*" is decreased from 0.30 to 0.20, a liberal assumption, the applied force must be doubled for the same torque.

Considering that this brake inherently gives only one-seventh of the torque of the new brake, the advantage of the new operating mechanism and cast iron lining can readily be understood. The comparison between the two brakes, p. 401 and 402, Fig. 15 and 16 (the comparison also holds good for Fig. 15 and 18), is much too liberal for the type, Fig. 18, on account of the frictional qualities (the value and constancy of "*f*") not being compared, the same "*f*" for both types being assumed.

G. E. Flanagan—I would like to ask if there are not in use brakes that operate by an electrically retarding influence, somewhat the reverse to the action in an induction motor? There are such things as induction clutches for driving machinery and I believe the same principle has been applied to brakes for retarding the fall of a load.

The Author—The trouble with these brakes is that current is required for braking, which prevents their use for general application. Eddy current brakes are used for street car work in connection with dynamic braking, but I do not know of any in use for industrial purposes.

J. L. Klindworth—I would like to know whether the shoe is hard cast iron and the wheel very soft, also whether the heels on the shoes wear rapidly.

The Author—The wheel and shoes are both of soft iron. The brakes of the type shown in Fig. 8 wear very slowly and evenly indeed. The adjustments necessary are very few.

Brent Wiley—There is one feature in the brake under discussion which has given very satisfactory results, and that is the gradual manner in which the retarding force is applied so that the shaft does not take the retarding force as a shock. That is one of the particularly good points in a brake of this kind and one in which the old type of band brake was at fault as in that the load was suddenly applied. This is one of the practical points that have been brought out in all references to experiences we have had in the field.

W. O. Brosius—I would like to ask Mr. Steen about how quick they figure on stopping a motor running full speed, not driving any machinery, with just the momentum of the armature behind it. About how many turns would a 75 horsepower 600 revolutions per minute motor make before it comes to a dead stop from full speed ahead?

The Author—It depends very much on the brake, the band brake, Fig. 20, stopped the motor in about three or four revolutions, I should say. Considering the size and weight of the brake this result is not obtainable in other reversible band or shoe brakes.

H. D. James—It depends very much on the motor shaft. About five or six

[1]A paper read before the Engineers' Society of Western Pennsylvania, Oct. 20, 1908.
[2]Printed in The Iron Trade Review of Dec. 24, 1908.

revolutions is as quick as is usually safe. In a motor properly designed for a quicker stop it could be accomplished in considerably less time. Practically all the energy the brake absorbs is that of the revolving element of the motor. The load itself super-imposes a fixed torque which decreases the available torque the brake has to stop the motor. If, for example, a motor running five or six hundred revolutions per minute with any reasonable amount of stored energy and it is stopped under five or six revolutions, the brake exerts rather a severe strain on the motor machinery, particularly on the gears. Brakes can be made to stop a motor in two or three revolutions if the motor is strong enough.

Lee C. Moore—I would like to ask the gentlemen what experience they have had with an automatic or self-acting brake. I have had some experience with self-acting inclined planes. I learned a long time ago that accidents were largely due to the operator not being quick enough with his brake. Some years ago I had occasion to build a heavy plant, and it occurred to me to reverse the operation and build it with the brake always applied so that the operator had to lift the brake to release it, and I have never had a run away on that plane. It is a pretty heavy incline, 35 per cent grade and about 1,800 feet long. The device was arranged by putting weights on each brake leaf heavy enough to exert the full power of the brake. The method of operation is by means of a wheel lifting these two weights, which, of course, releases the brake bands and the trip starts down the hill. If it gets to going too fast the weights are lowered a little. In other words the weights set the brake; all the operator does is to release the brake. The operator has to exert a force constantly to overcome the weight, and if he releases the weight the brake would set automatically. The difference between the brake band when set and released is very little. For instance, the brake bands were 6 feet in diameter and the length of the weight lever releasing those brakes was 4 feet, lifting the weight 6 inches would release both brakes.

E. K. Hiles—I think that same idea is exemplified in Mr. Steen's paper in the band brake which has a cast iron sleeve split along one element, which springs away slightly from the wheel surface, and I judge that spring is very little. How much is it, Mr. Steen?

The Author—The clearance necessary is not over 1-32 inch and often less than that. This is one of the great advantages of this brake. It means a small travel for the magnet; and in turn a small magnet with less current; and greater efficiency all along.

Lee C. Moore—That is exactly what I was trying to get at. I venture to say if you bored your band 1-64 inch larger in diameter than your wheel and supported it in such manner that its own weight would not carry it down on the wheel surface, that it will release your wheel every time.

The Author—I recall a brake about 2 feet in diameter for which the band was bored ⅛ inch larger in diameter, giving 1/16 inch clearance all around. With a wheel 6 feet in diameter, I would bore it at least 3-16 inch larger in diameter. After the band is properly adjusted by set screws the actual clearance is reduced to about 1-32 inch all around.

G. E. Flanagan—The question of automatically applied brakes suggests a certain relation between safeties of elevators and shoes on a brake. There are some safeties on elevators in which the shoes have a kind of planing action on wooden guides. I think Mr. James can tell us something on that subject.

H. D. James—Mr. Flanagan refers to a form of brake known as car safeties attached to the frame and generally applied by centrifugal action of a governor at over speed. One form of clutch consists of a series of diamond-pointed knives that cut into an iron rail. That does not resemble our brake as closely as the form of safety brake which grips the rail with a wedge action. The rail consists of a steel T and the safety grips it like a pair of scissors; it is driven by a tremendous force so that in reality it cuts into the metal, although not appreciably. It differs from the ordinary reversing brake in that if applied very often it would result in the destruction of the guides. It is something to be applied only on occasions of emergency.

There is one point that Prof. Smart's experiments brings out that is interesting. Referring to curves, No. 1 and 2, Fig. 26, if the zero speed and the very high speed is considered it is noticed that shortly after starting the friction drops off from static friction to running friction and continues along at about a mean value until quite a high speed is reached, when the friction decreases rapidly. I have been considering this in connection with run-away trolley car accidents; when once the car is going rapidly down an incline it is pretty hard to stop it with a brake. Even with heavy cars there does not seem to be the necessary adhesion to bring it to rest. It must be that there is, with two friction surfaces rubbing together as Prof. Smart suggests a rolling of the molecules. The surfaces seem to be self-lubricating so that two surfaces traveling beyond a certain rate of speed do not exert much friction upon each other. We have all had experience in trying to stop a piece of apparatus after it has got beyond a certain speed, the brake that usually is effective does not stop it under these conditions. After an elevator car has attained a certain speed there is only one way to stop it, and that is to cut into the guide sufficiently to make it stop.

G. E. Flanagan—It seems to be definitely established that cast iron against cast iron is the thing in brakes of the types under consideration. But perhaps there is some further word to be said on this point. There may be brakes in use composed of two metals, one for strength and the other for friction qualities against the surface of the revolving part.

H. D. James—In regard to the question of friction surfaces I do not think the last word has been said by a good deal. The experiments and such other published data as Mr. Steen has had access to, indicates that cast iron on cast iron gives the best results. It is perfectly possible that other metals may be produced which may be very much better. This merely represents the information that certain of us have been able to get up to date.

E. K. Hiles—In bringing out the fact that cast iron on cast iron is one of the best arrangements of material for friction purposes, it is interesting to note that the same arrangement is also one of the best for avoiding friction. Many years ago Mr. Charles T. Porter built a high speed engine with a cast iron shaft running in cast iron bearings which soon took on a highly glazed, very hard surface and showed very little friction. It is worthy of note that the same material, by merely varying the pressure, will exhibit such antithetic properties. Using cast iron as a non-friction material the pressure is kept low enough to permit it to glaze, using it as a friction material in a brake sufficient pressure must be used to cut the glaze, or prevent its formation, without seriously scoring the cast iron.

Lee C. Moore—What experience has been had using wrought iron against cast iron in brakes?

H. D. James—We used cast steel on cast iron with fair results. The wear for the same amount of work was considerably more than with cast iron on cast iron. When we came to a fibrous material it seemed to disappear in chunks. It is the granular form of the metal that seems to give it long life

and still the proper action. Of course, there is a fine powder that generally gathers at the brake. The tests we made were with a 13 inch wheel used as a stop brake for a heavy armature, and it was operated about every six seconds, 10 or 12 hours a day for about six months with some accumulation of dust, the cast iron wheel being reduced about 1-16 inch in diameter. The shoes wore much faster, of course. We lined the shoes with sheet steel and they cut the wheel down rapidly. We lined them with bronze plugs which cut grooves in the wheel. We tried lignum vitae which gave good action until it burned up. Certain shoes lined with babbitt metal have been used by one of the crane builders, but I think that babbitt has a tendency to flow if it is worked hard. It seems that the granular nature of cast iron is the real reason for its successful operation.

Mr. Stevenson spoke about bronze on iron. I do not believe bronze is very good and I am sure it is expensive to grind up in that way. For a brake working under these conditions I do not believe any fibrous material is good. Discs run under oil are often made of fibrous material. The disc is generally sheet steel, and I believe they do use bronze. But where there is considerable wear and something cheap is wanted, cast iron seems to fill the bill pretty well, and although other compounds may be evolved that work better, I doubt if we will get anything that will be as commercially suitable as any commercial grade of cast iron. Common iron is not quite as good as a uniform grade of soft cast iron, but it is cheap and it works well.

Tests on a brake are pretty hard to make with more than a certain degree of accuracy, without expensive apparatus to record results. To test the constancy of friction, the motor was used to drive the platen of a planer running at constant speed, and a bar of iron was placed in the V of the back grooved way of the planer so that when the bed came up on the high speed stroke it would barely touch the bar. Observation showed that there was not 1-16 inch variation in the point of stoppage of the planer bed. Of course, the gear ratio between the motor and the bed of the planer was considerable, but it will give an idea of the commercial accuracy with which we measured the variation in friction. Another test to determine the uniform character of the friction was to set the brake and drive the motor at a certain fixed speed and measure the electrical input. If the friction surfaces varied, either the speed of the motor would vary or the electrical input would have to vary. We found that there was not a marked difference in the friction. We did, however, notice that at the higher speeds at which this brake was driven the coefficient of friction dropped off somewhat as indicated by the curves shown in Fig. 26. These tests were not on an elaborate scale at all, they were entirely commercial, made in a rough commercial way, because the results sought were intended to be used in selling a commercial product.

The Author—I think that the following reasoning may explain the dropping off and variation of the torque, besides the decrease of the coefficient of friction at higher speed. After the cool shoes are applied the tips heat and tend to straighten out and separate slightly from the wheel surface. The pressure per unit area will, therefore, be greater at the middle of the shoe. The pressure on the wheel decreases on account of the reduced wedging action for smaller arcs of pressure surface, and the torque as a consequence decreases also. After a while the ends of the shoes again engage with the wheel as they cool down and the pressure and torque, therefore, approach their original values. This may explain the decrease and small fluctuations in the current input of a motor loaded with a brake.

In conclusion I wish to express my thanks to H. D. James for the valuable information placed at my disposal, and to the secretary of your society for the interest taken in my paper in its final preparation for the proceedings. I wish further to make acknowledgement to those manufacturers who have furnished descriptions of many interesting designs.

LAKE SUPERIOR CORPORATION FINANCES.

The recent steady increase in the price of Lake Superior Corporation securities is explained by Philadelphia interests as being based upon the definite announcement that the Fleming interests have completed the financing of the present capital needs of the corporation through the medium of the Lake Superior Iron & Steel Co., which has sold to Mr. Fleming $2,000,000 in three-year six per cent notes guaranteed by the corporation, and also $1,000,000 of Lake Superior Corporation first mortgage bonds, which have hitherto been held in the company's treasury. These items will net the company sufficient to defray the expenses of building a new blast furnace and open-hearth furnace and coke plants, as well as provide the necessary working capital.

TWO NEW MACHINE TOOLS.

We illustrate herewith two new machines designed and built by the Adams Co., Dubuque, Ia. The first of these, the Farwell automatic gear-hobbing machine, is designed for cutting spur gears, as well as worm

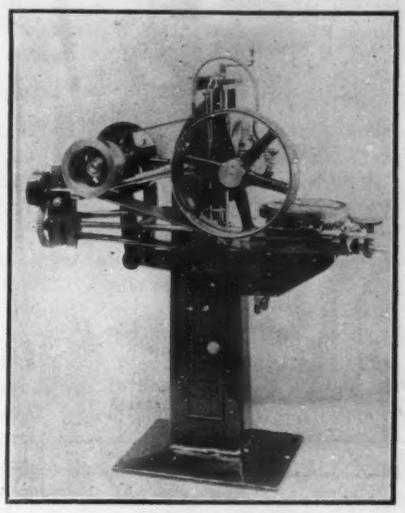


FIG. 1—SIDE VIEW OF GEAR-HOBBING MACHINE.

wheels, by means of the hob. Fig. 1 is a side elevation of the machine, and Fig. 2, a partial front view, shows a gear in process of cutting. The spindle head, it will be noticed, is swiveled upon the saddle, so that the proper angular setting may be had for cutting worm gears. This saddle is gibbed to the column and provided with vertical feed. The table revolves on a wide angular surface, giving a rigid support, and the knee which supports the table is hollow and forms a tank or reservoir for lubricant, which is delivered upon the cutter and work, when desired, by a small plunger pump, and which flows back to the tank through holes in the hub of the

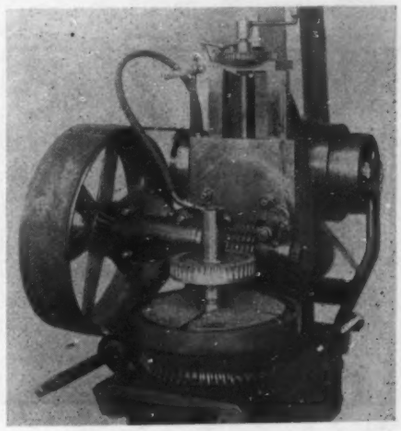


FIG. 2—FRONT VIEW, SHOWING GEAR IN PROGRESS.

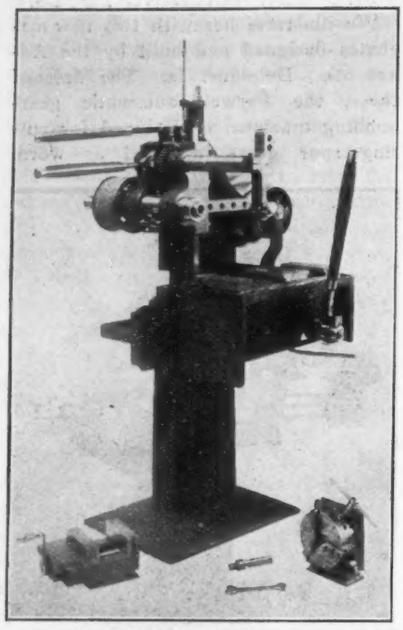


FIG. 3—QUICK-CHANGE MILLING MACHINE.

table. The rotation of the table is effected through the beveled gears on the spindle head, and a worm gear at the table, communication between the two being effected through a universal-jointed shaft and spur gears. The vertical feed, obtained by means of a pawl and ratchet, is operated by an eccentric on the worm shaft, and may be changed without stopping the machine, and is automatically tripped when the gear is finished. The drive is through a 4-inch belt on a 15-inch diameter pulley from a swinging countershaft at the back of the machine, which carries a three-step cone for 2½-inch belt. The machine is automatic, excepting as to putting on blanks and removing finished gears.

The second machine, known as the Farwell quick change milling machine, is designed not only for the small work for which hand milling machines are usually employed, but for a considerable amount of work, which usually goes to the shaper. Special attention has been given to the problem of securing the utmost rigidity, as it is well known that in all classes of milling work vibration is a great obstacle to rapid and satisfactory work. Fig. 1 gives a very good idea of the general design and arrangement of the machine, and Fig. 2 of the machine at work. The quick change features, by which hand levers not only move the table, spindle and head, but lock these by a right angle movement of the lever, should make these machines very convenient for a variety of work, not only in ordinary milling operations, but in profiling and cam cutting. The machine is furnished with a 6-inch by 3-inch vise, and also with a 6-inch, three-jawed chuck, which is fitted with stops or graduations for spacing work. The spindle is 1 15/16 inches diameter, with taper bronze bearings, and has six speeds through the three-step cone and two clutch-pulleys on the swinging countershaft at the rear of the machine. A catalog issued by the maker not only gives different views of the machine, but numerous examples of work in process of execution, and which illustrate the adaptability of the machine to different classes of work.

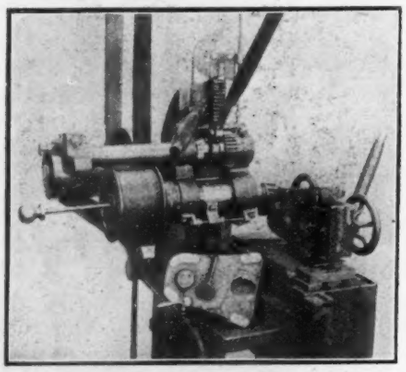
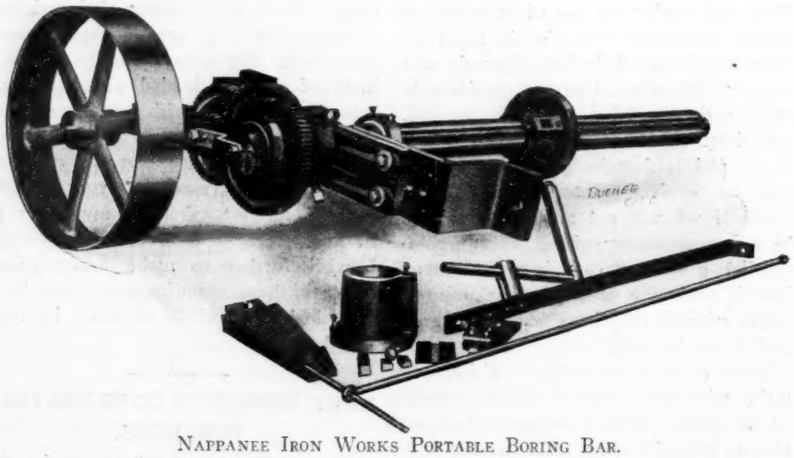


FIG. 4—ENLARGED VIEW SHOWING HEAD AND WORK TABLE.

Incinerating Plant.—Experiments have been conducted at the Zenith furnace at Duluth for some time past in connection with the possible building of a plant there for incinerating flue dust. Such a plant is now under construction and will be completed by the time the furnace, which is out for relining, is again blown in.

A PORTABLE BORING BAR.

We illustrate a portable boring bar manufactured by the Nappanee Iron Works, Nappanee, Ind., designed for general use, more particularly for reboring valve chests and cylinders without removing from the engine. Besides being adaptable to all types of steam engines and locomotives, it may also be conveniently used for steam hammers, pumps, blowing engines, air compressors, etc. Much of this work has to be done in position in very cramped situations and this bar is designed especially for such service. It is made in three sizes; No. 1 is designed for diameters from 4 inches to 12 inches; No. 2 from 7 inches to 24 inches; and No. 3 from 7 inches to 36 inches. It is often the case that cylinders can be rebored in place in less time than they could be removed from their fixed position, and, in addition, it is not necessary to disturb steam or water connections, anchor, anchorbolts, etc. Cutter-heads, arms and tools are furnished with each machine suitable for the given diameters. The bars are powerfully geared, and can be driven by hand or power. The steel feed screw is sunk into the bar, giving substantial support and rigidity under all conditions and has an eight-pitch square thread. The bar is very compact, strong and simple in construction.



NAPPANEE IRON WORKS PORTABLE BORING BAR.

French government reports show a total production for 1908 of 3,412,393 tons of pig iron, which is 177,842 tons less than last year. The output of steel was given as 2,743,045 tons, a decrease of 23,728 tons.

The Copper Producers' Association shows that the stocks of marketable copper had increased 8,995,654 pounds, as compared with March 1.

INTERESTING TESTS OF STEEL CASTINGS

Ballistic Test of a Cast Steel Cylinder to Detect Internal Strains—Hydrostatic Tests of High Pressure Valves

The production of steel locomotive cylinders is a comparatively recent development in the steel foundry industry, and service tests of these castings made by some of the leading trunk lines would indicate that gray iron cylinders will soon be crowded for supremacy in the railroad field. Experiments are also being conducted which may ultimately lead to the casting in steel of small gas engine cylinders for automobiles and motor boats. To cast the thin sections of these cylinders successfully is, however, a difficult problem for the steel founder to solve, and until this is accomplished he will be compelled to devote his attention to the larger and heavier castings of this type. Several large orders were recently placed by the railroads for cast steel locomotive cylinders and several foundries have equipped for this work.

Locomotive Cylinder Test.

In addition to the service tests conducted by the railroads, the United States government subjected one of these cylinders, made by the Penn Steel Casting & Machine Co., Chester, Pa., to a ballistic test at the Indian Head prooving grounds near Sparrow's Point, Md., for the purpose of ascertaining the extent of internal strains. The casting, although thoroughly annealed before shipment, was made of the same steel mixture used in several cylinders cast at that time. A test bar from this heat showed a tensile strength of 76,500 pounds per square inch, an elastic limit of 37,500 pounds per square inch, an elongation of 26 per cent and reduction in area of 31.2 per cent. The analysis was as follows: Carbon, 0.29 per cent; manganese, 0.50 per cent; sulphur, 0.034 per cent; phosphorus, 0.034 per cent, and silicon, 0.357 per cent.

Metal Thickness.

The metal thickness varied from one to four inches, proportions favorable to the development of strains which cannot always be eliminated in the anneal. Notwithstanding the fact that three shells were fired at the casting at a distance of 30 feet, not a check appeared nor was the casting injured in any way except where the shells passed through or were imbedded in the steel.

Ballistic Test.

The cylinder as it appeared after the test is shown in Fig. 1. One shell passed through the steam cylinder at A, another was broken off in the pad at the side of the valve chamber at B, while the third imbedded itself at C. In Fig. 2, the openings made by the shells are more clearly illustrated, and in Fig. 3 the shells are shown after their impact with the casting. Shell A, fired with a charge of three pounds of powder, was 3½ inches long and 1⅜ inches in diameter. It was cracked at the top in passing through the steam cylinder at A, Figs. 1 and 2, but could not again be put through the opening. Shell B was the same size as A and was fired with the same powder charge. The top was broken off and this was removed from the opening B, Figs. 1 and 2. Shell C was 4½ inches long and 1⅜ inches

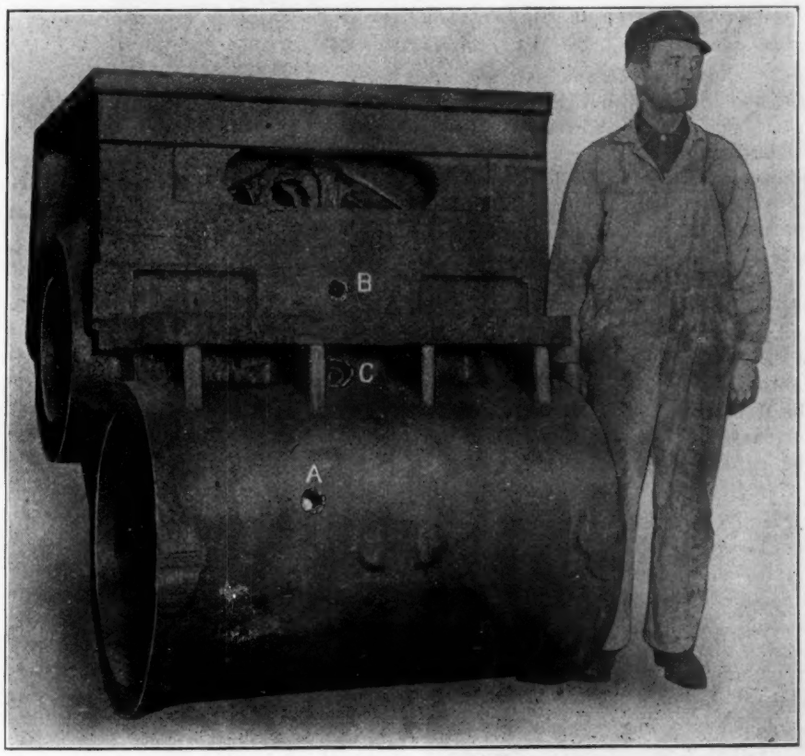


FIG. 1—CAST STEEL CYLINDER SUBJECTED TO BALLISTIC TEST TO DETECT INTERNAL STRAINS

FIG. 2—A SHELL PIERCED THE CYLINDER AT A, BUT THE OTHER TWO WERE IMBEDDED IN THE METAL AT B AND C

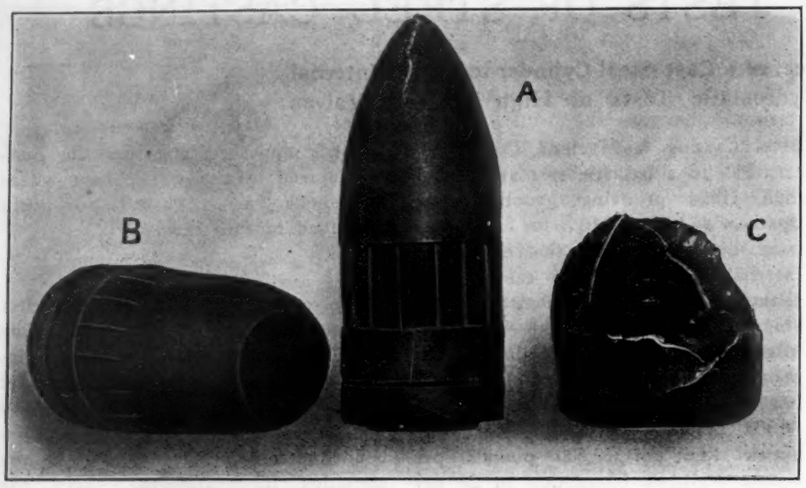


FIG. 3—THE THREE SHELLS AFTER IMPACT WITH THE CYLINDER

in diameter, and was fired with a powder charge of six pounds. With the exception of the lower part, which was broken off, the shell imbedded itself in the casting at C, Figs. 1 and 2. Neither shells B nor C passed through the casting, nor were any checks developed.

Internal Strains.

This test proved conclusively, that whatever internal strains existed in the casting were removed by the annealing process, notwithstanding the disproportionate thicknesses of the metal in the cylinder. It also set at rest contentions made by many prominent engineers that so difficult a casting as a locomotive cylinder, in which the metal thickness varies greatly, could not be cast in steel.

Hydrostatic Tests.

Interesting hydrostatic tests of cast steel valves intended for high pressure water service have also been made by the Penn Steel Casting & Machine Co. Two, 2½-inch globe valves, 7/16-inch thick, tested to destruction are shown in Fig. 4. The one shown at A burst at 9,900 pounds, while valve B burst at 9,500 pounds. An 8-inch T made of cast steel and annealed, ¾-inch thick, subjected to a hydrostatic test, which burst at 9,500 pounds, is shown in Fig. 5. Specifications, however, called for a test of only 800 pounds. These tests proved conclusively that cast steel is probably a more desirable metal for high pressure service than is ordinarily specified by engineers.

Locomotive Frame.

An annealed, cast steel locomotive frame, one-half of which was almost bent 90 degrees without developing a fracture, is shown in Fig. 7. The frame was rejected by the railroad to which it was shipped on account of sand holes, although a test bar from this heat showed a tensile strength of 68,500 pounds. The carbon was 0.27 per cent. Inasmuch as the frame was to be broken up for remelting in the open-hearth furnaces, it was decided to test it under the drop until broken. The ball of the drop weighed 4,000 pounds and was permitted to fall a distance of 50 feet. The ball was dropped continuously for several hours until the frame was bent as shown, but unfortunately no record was kept of the number of blows.

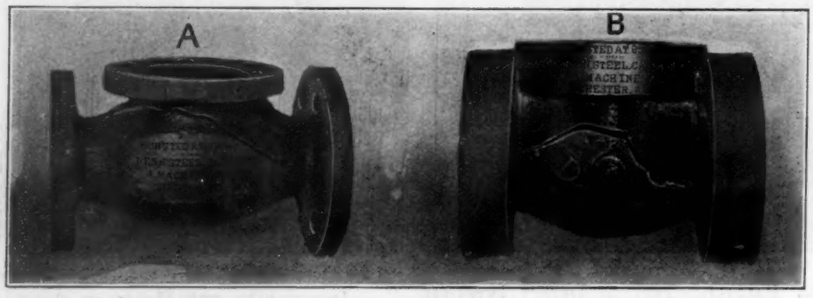


FIG. 4—CAST STEEL VALVES TESTED TO DESTRUCTION

Vanadium in Cast Steel.

This concern has also experimented successfully with vanadium, and uses this alloy in its mixtures whenever specified. The fracture of a cast steel test bar, unannealed, made with vanadium, is shown at B, Fig. 6. It can clearly be seen that it has a much finer grain than the annealed test bar made without vanadium at C. The fracture of the unannealed cast steel test bar, containing no vanadium alloy, is shown at A. The grain is very coarse, and by comparison with C, the good effects of the annealing process are clearly illustrated.

The vanadium is added in the acid open-hearth furnaces in the proportion of approximately one-fourth of one per cent of the charge which is melted as usual, worked down with ore to about 0.4 per cent carbon, and is "shaken down" for the remainder of the decarbonization. After all of the other alloys have been added, including the ferro-manganese, the flame is "blanketed" and the vanadium alloy is added in large pieces. About three minutes is required for working through the bath, which is meanwhile rabbled. Tapping and teeming are then performed as usual.

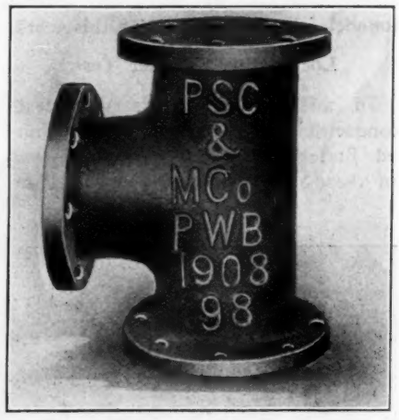


FIG. 5—CAST STEEL TEE WHICH BURST AT 9,500 POUNDS

Cast Steel Saddles.

In Fig. 8 are shown two lots of cast steel boiler saddles through which are cold-punched holes, ⅞-inch in diameter. This is a very severe test for any casting, but the loss from this punching operation is very low, inasmuch as the saddles are carefully annealed.

The plant of the Penn Steel Casting & Machine Co. comprises two foundries. No. 1 is equipped with three

30-ton acid open-hearth furnaces, is 60 feet wide with 22-foot bays, and is 632 feet long. No. 2 foundry is equipped with two, 2-ton converters, and is 200 x 68 feet. The chipping shop, which is built at right angles to the foundries, is 225 feet long and 75 feet wide. The pattern storage is three stories high, 203 x 50 feet. The machine shop is well equipped with tools, electrically driven, and covers an area of 300 x 59 feet.

Use of Chills.

In the foundry no chills are used. Hay rope is imbedded in the molds adjacent to the parts of the casting that are to be chilled, and as this burns out while the molds are being dried, it leaves passages through which water is circulated immediately after the mold has been poured. This method of chilling has given very satisfactory results, and obviates all danger of the shifting of the chills ordinarily used in the molds, and which is a source of considerable loss.

Shop Order Blank.

A shop order blank on which is sketched the patterns of castings to be made, together with their dimensions, is issued and mimeograph copies of this order are made for each department, and in this way every foreman has a knowledge of the work going through the shop. After the order has been received, a blank is filled out and sent to the pattern shop where the patterns are roughly sketched in the shop order as shown. The dimensions are carefully noted as well as the number of the patterns. Mimeograph copies then are made of the original and distributed throughout the shop as noted. The sketches enable the cleaning gang to easily keep track of each lot of castings and they are also readily sorted for the shipping department. Similar orders are also issued for all work for the various departments of the plant and in this way an accurate record can be maintained of all of the castings that are made for the shop, independent of the castings that are made for the trade.

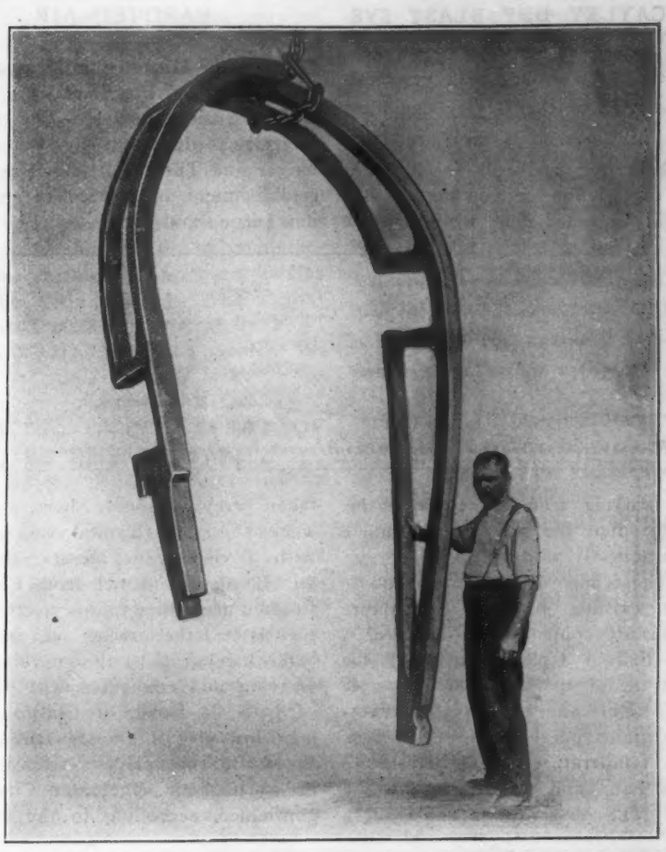


FIG. 7—CAST STEEL LOCOMOTIVE FRAME BENT UNDER THE DROP

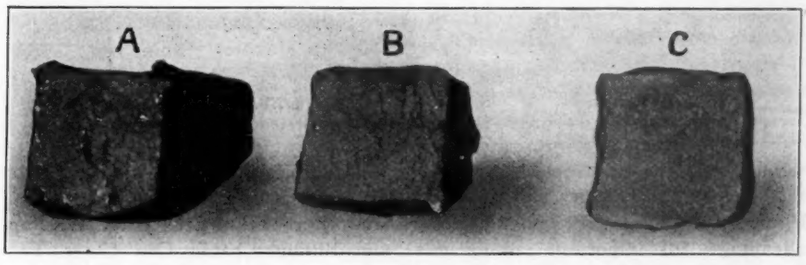


FIG. 6—FRACTURES OF UNANNEALED, VANADIUMIZED AND ANNEALED CAST STEEL

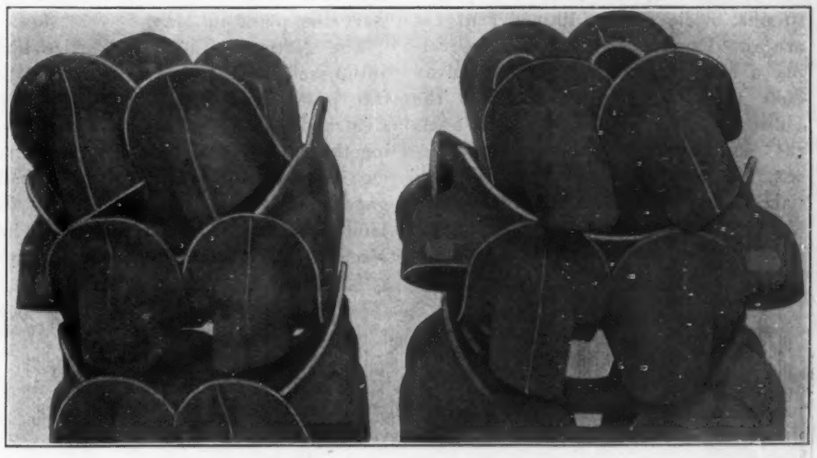


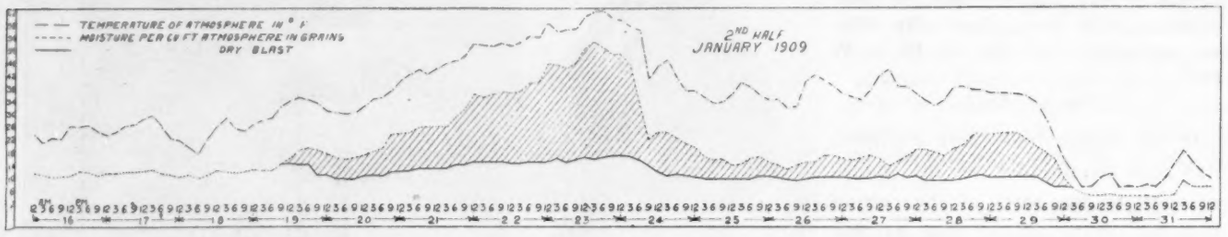
FIG. 8—CAST STEEL BOILER SADDLES

Seventy-eight states report for March showing building expenditures of $661,795,574, an increase of 78.7 per cent over the expenditures in the same states in March a year ago.

THE GAYLEY DRY BLAST SYSTEM.

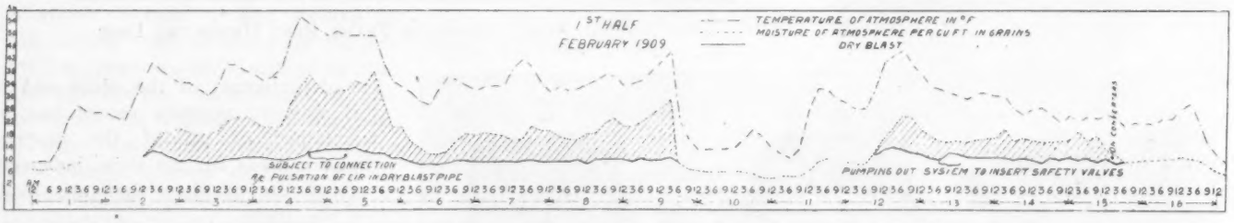
The charts herewith exhibit graphically the action of the Gayley dry blast system in abstracting moisture from atmospheric air, and call for little in either explanation or comment.

It will be noted that with moisture



present varying from six to 54 grains per cubic foot the process provides a blast practically uniformly dry.

The charts also disclose the intimate relation existing between temperature and moisture content. For instance, it is seen that at 3 p. m. on Feb. 9 the temperature of the atmosphere was 45 degrees Fahr. and the moisture present, 30 grains per cubic foot. By 9 p. m. the temperature had fallen to 17 degrees Fahr. and the moisture to 7.5 grains. The observations are from a


1ST HALF
FEBRUARY 1909
TEMPERATURE OF ATMOSPHERE IN °F
MOISTURE OF ATMOSPHERE PER CU FT IN GRAINS
DRY BLAST
SUBJECT TO CONNECTION
& PULSATION OF AIR IN DRY BLAST PIPE
PUMPING OUT SYSTEM TO INSERT SAFETY VALVES

recent installation at a modern up-to-date stack and are the first graphic records so far made public.

Reductions in wages continue to be made by furnaces and steel works in the valley, Pittsburg and adjacent territory. Among the latest companies to post notices of a 10 per cent cut are the Dunbar Furnace Co., operating a blast furnace and Semet-Solvay coke works at Dunbar, Pa., and the United Iron & Steel Co, which owns the Fannie furnace at West Middlesex, Pa., and the Cherry Valley furnace at Leetonia, O. Only the Cherry Valley stack of the latter company is now in operation.

RARIFIED AIR

Changed to Hot Air in Mexico—Talk of Big Deal.

Mexico City, April 16.—The reported interviews given out by Victor Bellanger and Thomas A. Boyd as to the establishment in Mexico of extensive new iron and steel works is not taken very seriously here. A few weeks ago, the capital was favored with a visit from Messrs. Bellanger and Boyd, the former from Paris and Boston, according to his account, and the latter the owner of important patents relating to the machinery for weaving and connected with the firm of J. & T. Boyd, of Glasgow, Scotland, owners of the Shettleton Iron Works of that place. After imbibing the rarified air of Mexico City, these gentlemen, according to the local interviews given out, proceeded to buy the Monterey iron plant and to establish also a $50,000 iron plant, taking advantage of important discoveries made from their hotels as to the iron and coal resources of Mexico. They left for California, Boston and Paris and will return with the capital to start the plant in May.

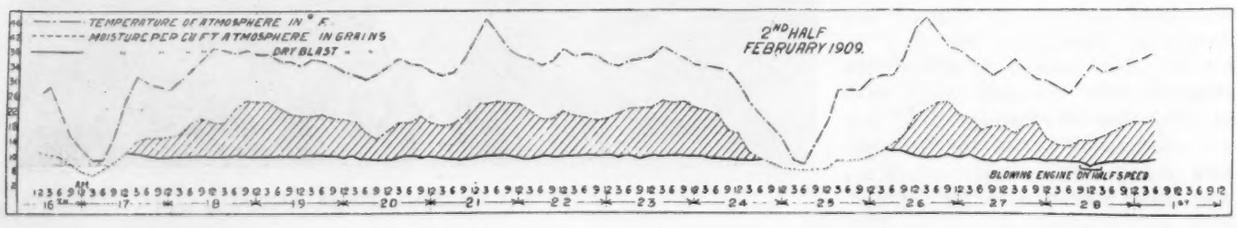
The National Line of Mexico has authorized the expenditure of 12,000,000 pesos on improvements on the Central Mexican lines and for converting the Interoceanic line between Mexico City and Vera Cruz to broad gage. Bids will be called for in United States and Europe. The Monterey plant has resumed full operations again after some delays for new installations and changes.

The Mexican Southern railway is replacing the wood ties in Tomellin canon with steel ties as are used elsewhere on the road.

Fundicion Hidalgo has been started at Monterey, in charge of P. S. Evans. C. Crowell is manager. The company will engage in a general iron foundry business. Capital 30,000 pesos.

At the annual meeting of the Cleveland Manufacturers club, the following were elected to the board of control: M. F. Barrett, the Cleveland Bronze & Brass Co.; D. R. Davis, Acme Machinery Co.; W. W. Hayward, the Cleveland City Forge & Iron Co.; W. D. Sayle, the Cleveland Punch & Shear Works Co.; W. A. Comstock, the Cleveland Wire Spring Co.; W. F. Billenstein, the National Iron & Wire Co.; C. F. Kurz, the Cleveland Store Fixture Co.; W. W. Rankin, Billings-Chapin Co.; C. H. Foster, Gabriel Horn Manufacturing Co. The board elected the following officers: President, W. A. Comstock; first vice president, W. D. Sayle; second vice president, W. F. Billenstein; treasurer, D. R. Davis; secretary, J. W. Campbell. Mr. Campbell's report showed a membership of 125.

The Gayley dry air blast was successfully started April 13, at the two stacks of the Toledo Furnace Co., Toledo, Mr. Gayley being present for the occasion.



CITY HALL CONTRACT

Awarded at Indianapolis — Indiana Concerns Expanding.

Indianapolis, Ind., April 26.—Following the dissolution of a temporary restraining order, which for a time prevented the letting of the contracts, the city has let the general contract for the city hall building to the Westlake Construction Co., St. Louis. The contract was let on an alternate bid substituting Bedford stone for granite in a part of the base course, and the general contract amounts to $510,400. The sub-contract for the structural steel will be let to the Noelke-Richards Iron Works in this city and will call for approximately 615 tons of steel.

In addition to the city hall contract, the Noelke-Richards Iron Works has a large number of large contracts on hand. The company recently completed a contract for 950 tons of steel in the office building of the Audubon Building Co., New Orleans, and is finishing up a contract of 1,050 tons of steel in the Empire building, Birmingham, Ala.

The Caldwell & Drake Iron Works at Columbus is running a full force of employes, owing to the contract the company has received for the new Douglas county court house at Omaha, Neb. The contract price was $822,571 and the contract for the structural steel alone amounts to about $150,000.

Business men of Muncie are arranging to establish a new iron works in that city and it will likely be given a substantial boom by the Muncie Industrial Association. According to present plans, practically all of the product of the proposed plant will be sold in Muncie, one concern in that city offering to use two-thirds of the output.

It is probable the M. Rumley Co., of Laporte, manufacturer of traction engines and clover hullers, will establish a steel plant of its own. The company has recently issued $500,000 worth of preferred stock and in addition to its already large plant is arranging to build a new factory for the manufacture of gasoline and kerosene traction engines.

The Morgan Cash Fare Co. has just been organized in Indianapolis and expects to establish a plant immediately for the manufacture of cash fare registers. Henry A. Mansfield, Fred A. Morgan and Clinton M. Morgan have invested $25,000 in the concern.

A plant for the manufacture of steel castings will be established in Terre Haute. A company for the purpose is being organized by H. C. Smith, president of the Allith Mfg. Co., Chicago, and the new company will be given a bonus and other assistance by the Terre Haute Commercial Club. A building 100 by 250 feet is to be erected.

Concrete mixers and supplies for concrete machines will be manufactured by the newly organized Dexter Mfg. Co., South Bend. The capital stock is $10,000 and is held by F. C. Klein, W. H. Baker and George W. Zinky.

REJOICING OVER DEFEAT OF AN UNJUST BILL.

The bill providing for a tonnage tax on iron ore which was passed by both branches of the Minnesota state legislature was vetoed by Governor Johnson, as stated in THE IRON TRADE REVIEW last week, and it is generally accepted that the matter is settled for the present session of the legislature at least. The reasons given by the governor for his action as stated in his message were briefly as follows:

First—The bill is a crude and uncertain experiment, drawn without sufficient consideration, and doubtless unconstitutional.

Second—It aims a severe blow at the chief industry of northern Minnesota.

Third—It is calculated to arouse a political and sectional feeling which will injure the future development of the whole state.

Fourth—That marked success has attended the present ad valorem system of taxing mine properties, as administered under the state tax commission.

The entire northeastern section of the state had been aroused by the passage of the bill, many petitions and delegations were sent to the state capitol, and the final defeat of the bill was the occasion for an unusual celebration in which many of the most prominent citizens of the state participated.

President Eells' Cabinet.—Howard P. Eells, president of the National Metal Trades Association, has named the following gentlemen to serve as his cabinet under the title of the executive committee of the administrative council: J. H. Schwacke, of the William-Sellers' Co., Philadelphia; H. W. Hoyt, of the Great Lakes Engineering Works, of Detroit, and P. B. Kendig, of the Seneca Falls Mfg. Co., of Seneca Falls, N. Y.

HEROULT FURNACE

On the Pitt River in California Completed—New Railway Bridges.

San Francisco, April 22.—The board of public works has awarded the contract for the steel work on the new Hall of Justice to Dyer Brothers, of the Golden West Iron Works, San Francisco, at a cost of $113,675.

Bids will be received June 9 for 1,200 hydrants to be used in the construction of the auxiliary fire protection system, at an estimated cost of $150,000.

Steel and iron fabricators are watching the result of the test in reducing iron ore by electricity. The Heroult electric furnace on the Pitt river is completed and the test is to be made almost any day. The projectors are very confident, though they will not give out any information until they are satisfied that the enterprise is a success. The new furnace is expected to yield 25 tons of steel every 24 hours. The projectors have spent more than $300,000 on the electric furnace.

The Western Pacific railway will replace its present steel bridge across the American river at Sacramento on account of the defects shown in it resulting from the high water of last winter, when two spans were torn out through the collapse of one of the piers. The present 80-foot steel girders, 7 feet high, are to be replaced with concrete piers set in the solid bed rock. There will be two spans of 160 feet in midstream, which will reduce the number of piers.

The Southern Pacific Co. is taking soundings for the double track bridge across the American river a short distance above the bridge of the Western Pacific. The bridge will cost $600,000, and work is to be commenced very soon.

Virginia Stack Lighted.—The Buena Vista, Va., stack of the Oriskany Ore & Iron Corporation, with main offices at Iron Gate, Va., was blown in April 7, and is now running on foundry iron with an output of 150 tons daily, using Oriskany ore. The stack is equipped with both sand and chill beds. The company is prepared to deliver foundry, basic and car wheel pig iron. W. O. Spangler, of Buena Vista, is superintendent of the stack. The Oriskany company also has in blast the Iron Gate stack and is furnishing ore to neighboring furnaces.

ENGLISH VIEWS

AS TO SELLING PIG IRON IN THE UNITED STATES

Under Reduced Tariff Proposed by Payne Bill—Present Prices Very Near the Competitive Point.

The correspondent of THE IRON TRADE REVIEW, at Birmingham, Eng., has recently made careful investigation as to whether it would be possible for British iron to compete with the American product if the new tariff bill should make the tariff on pig iron $2.50. Mr. Horton finds that the British product can be laid down in New York at present prices and charges at $13.52. If the $2.50 be added, we have $16.02 as the entire cost of the British product. As the lowest freight from Birmingham, Ala., to New York, by rail and water is $4.25, the delivered price of the southern product in New York would be equal to that of the English product whenever the southern product should sell at $11.77 for No. 2 Birmingham, or $16.02 New York. No. 2 southern foundry on April 15, the date of our English letter, was quoted at $15 to $15.50 New York, and No. 2 plain northern at $15.50 to $16. Hence, it will be seen that at present low prices for American iron, the British product would come very near competing if the duty were only $2.50. Our Birmingham letter is as follows:

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., April 14.

Special inquiries have been made in Middlesbrough (Eng.) with a view to testing the possibilities of buying British iron under the revised American tariff. Among American importers an idea appears to prevail that the reduction of duty on pig iron from $4 to $2.50, presuming this is carried through, will encourage considerable profitable business with Great Britain. A different opinion appears to be held in Middlesbrough, where no great addition to business is expected under the new tariff. Our readers, however, can figure the matter out for themselves from the following details, which are from the very best sources in Great Britain.

The price of Cleveland iron is ruled by the Glasgow warrant market. It may be said at once that the problem is very much narrowed down for the reason that the only iron which can conceivably be exported is Middlesbrough iron. This is inevitable, because this is most cheaply produced, is the only iron available in sufficiently large quantities for shipping, and, being on the seaboard, can be put direct from the pig beds into the hold of the ship. Iron can be bought any day at the market quotation, and delivered f. o. b. steamer in the Tees. Taking, for example, the price of 47s 6½d, the figure prevailing on April 15, we have to add to this ¼ per cent commission, say 1½d, Tees dues 2¼d, which makes 47s 10¼d f. o. b., including all costs. It will be seen that there are no shipping charges as the makers put the iron f. o. b. and the ship does the stowing. The Tees dues are 3d per ton, less 25 per cent.

The present freight is about 6 shillings per ton for cargoes of 3,000 to 5,000 tons, to which has to be added say 3d per ton for insurance. This makes the cost c. i. f. New York, 54s 1¼d ($13.52). Americans will be best informed as to the charges involved in delivering iron at consumers' works on the east coast, and they can judge from the above figures whether Middlesbrough iron can compete with iron from Pennsylvania or Alabama.

British Prices Low.

Export possibilities will be very materially affected by the selling prices in Great Britain; and it must be remembered that these are now practically at a minimum, because of trade dullness and the absence of any demand from the United States. If such a demand were to spring up, even for only moderate quantities, the price in Great Britain would immediately rise, because the quantity of iron available, after ordinary markets have been supplied, is very limited. A most important factor, which has frequently been referred to at gatherings of iron and steel makers, is that the output of Cleveland iron cannot be materially increased, owing to the difficulty of getting good ironstone in sufficient quantities, while another circumstance is the increasing quantity of iron going into the manufacture of steel by the open-hearth basic process, which reduces the quantity available for foundry purposes.

It must always be borne in mind that the Middlesbrough output is very regular in quantity, and as a rule there is a full outlet for it, so that even in bad times the surplus is comparatively very small. For instance, during the last year there was a surplus of about 200,000 tons, and if the whole of this had been shipped to the states and "dumped" there, it would not have been a very appreciable quantity in the total consumption of iron in America. The shipments from this country to the states were very heavy in the seventies, while in the eighties much less was sent, and in the nineties very little indeed. In 1902, 1903, 1906 and 1907, considerable quantities were exported and in the last mentioned year the total reached over a quarter of a million tons. But these large exports only took place when prices were high, and there was great scarcity of iron in America.

One Manufacturer's Opinion.

One of the largest smelters in Middlesbrough, in reply to an inquiry by your correspondent, said: "Speaking generally I do not think that a reduction of the duty to $2.50 would make the slightest difference to our exports from here to the east coast of the states. It will probably have the effect of giving us a little advantage on the western coast, but not to any large extent. I am strongly of the opinion that the cost of shipment from here alone is quite sufficient protection to prevent any large quantity being exported to the states in ordinary times, and when to this is added a duty of even ten shillings per ton such export becomes quite impossible unless there is a very considerable scarcity of iron in America and a considerable surplus here."

He adds: "It should be explained that the British policy is not to dispose of iron at a sacrifice to any one market, but to reduce quotations until a market is found for the whole output or the surplus is taken up by the public in the form of warrants."

With regard to actual business transacted with the states there have been no fixtures for a considerable time from the Tees to the states for pig iron only. Two days ago, a cargo of 4,800 tons of combined pig iron and bricks was fixed up for New York and Baltimore, for which the total freight was 7 shillings. It should be added that all calculations are based upon cargoes of not less than 3,000 to 4,000 tons, and the larger the boat, of course, the more chance of getting a lower freight.

We have ascertained that in other quarters the possibilities of American business being negotiated have been considered, but the conclusion arrived at by the best judges coincides exactly with that quoted above. Of course, comparatively small quantities of ferro-manganese and ferro-silicon are always being shipped.

J. HORTON.

Market Trend Was Upward.

While the general trend of share prices for the week was upward, still it was declared that specific news was lacking, such at least as would in part account for this bullish market. Yet general reports of business from industrial centers as well as from the more prosperous western and southwestern sections of the country would tend to support present market views.

Monday's strong market with its firm close was followed by irregularity Tuesday, when May wheat broke 4⅜ cents in Chicago on large sales while May cotton advanced. Less activity with accompanying reactionary prices characterized Wednesday, wheat prices recovering somewhat and cotton going slightly lower while copper metal prices remained unchanged. Unmistakable buoyancy Thursday carried some issues to the highest prices for the year, a bad break in North Butte and a slump in wheat accompanying it. Alternate weakness and strength featured Friday's transactions, the close being lower. Saturday there was some recovery all around, the news of the fall of Constantinople not being received in London until after the close of the market.

Call money rates were easy the earlier part of the week, but advanced to 2½ per cent Thursday and finally 3 per cent on Friday. Belief is expressed that money will not be much if any cheaper until after next fall's crop moving. Gold engagements for the week, including exports earlier in the week for South America, reached the total of $5,000,000. The statement of clearing house banks shows they hold a surplus of $10,107,375, a decrease of $1,094,825 over last week. Actual figures show loans increased $1,672,800; surplus increased $1,245,350; deposits increased $4,178,200; and the percentage of reserve 25.8, an increase of 0.1. Non-member banks and trust companies reported loans increased $17,518,000; net deposits increased $19,457,300; and the percentage of reserve 18.9, a decrease of 0.3.

Idle car reports for the last fortnight exhibited practically no change. A steady and normal demand for print-goods, together with higher cotton prices, have added one-quarter cent a yard to some grades of goods in sellers' hands. Bank clearings throughout the country were in large volume, showing an increase of 52½ per cent over the corresponding week last year and 19 per cent over that of two years ago. The gain in gross receipts for 42 leading railroads for the first week in April was 12½ per cent over the corresponding week last year, and for the second week 12 per cent. Commercial failures for the week were 235 against 248 the preceding week and 308 the like week last year. Shares were sold to the number of 4,823,600 compared with 4,777,702 the preceding week and 2,851,640 the corresponding week last year.

THE LEADING INDUSTRIAL SECURITIES.

	Closing Quo. Apr. 24	Changes in Week	Date Ann.	1909 M't'g.	Stock Outstanding	Basis	Dividend Last Declared	Dividend Date Last Div. Pay.
Allis-Chalmers	15⅞	+ ¾	Sept.	2	$19,820,000		.....	.....
Allis-Chalmers pr	50⅜	+2⅝			16,150,000	7 cum	1¾ Q.	Feb., 1904
American Can	11⅛	+2	Feb.	2	41,233,300		.....	.....
Am. Can pr	79¼	+2¾			41,233,300	7 cum	1¾ Q.	Jan., 1909
Am. Car & Foundry	50⅜	+1⅛	June	24	30,000,000		½ Q.	Jan., 1909
Am. Car & Fdy pr	111½	.....			30,000,000	7 n. c.	1¾ Q.	Jan., 1909
American Loc	55⅜	+ ⅞	Oct.	19	25,000,000	5	1¼ Q.	Aug., 1908
American Loc. pr	114⅛	— ⅜			25,000,000	7 cum	1¾ Q.	April, 1909
American Ship	54⅜	—1	Oct.	13	7,600,000	4	1 Q.	June, 1908
American Ship pr	104½	— ½			7,900,000	7 n. c.	1¾ Q.	Oct., 1908
Am. Steel Foundries(new)	37½	.....	Dec.	2	17,184,000		.....	.....
Am. Steel Foundries, pr	47½	.....			17,240,000	6 cum	1	Aug., 1904
Barney & Smith	30	.....	June	1	2,000,000	4	1 Q.	Sept., 1907
Barney & Smith, pr	95	.....			2,500,000	8 cum	2 Q.	June, 1908
Bethlehem Steel	23½	+ ¾	April	6	14,862,000		.....	.....
Bethlehem Steel, pr	50	.....			14,908,000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	36⅜	+ ⅜	March	16	45,000,000*	3	1½ S. A.	Feb., 1909
Cambria Iron	46¾	+ ¼			8,468,000*	4	2 S. A.	Sept., 1908
Chicago Pneumatic Tool	23	.....	Feb.	15	6,145,800	4	1 Q.	Oct., 1907
Colorado Fuel	38¾	+1¼	Oct.	18	34,235,500		3½	April, 1902
Crucible Steel	7½	+ ¼	Oct.	20	24,578,400		.....	.....
Crucible Steel, pr	60	+ ⅜			24,436,500	7 cum	1 Q.	Mar., 1909
Empire Steel	7	.....	April	27	1,254,770		.....	.....
Empire Steel, pr	47	.....			2,500,000	6 cum	1½ S. A.	Jan., 1909
Fay & Egan	90	.....	Feb.	18	1,000,000	7	1¾ Q.	Nov., 1908
Fay & Egan, pr	125	.....			1,000,000	7 cum	1¾ Q.	Nov., 1908
General Electric	158¾	+2¾	May	11	65,178,800	8	2 Q.	Jan., 1909
Harbison-Walker	17	.....	Jan.	18	18,000,000		½	Oct., 1907
Harbison-Walker, pr	80	.....			9,600,000	6 cum	1½ Q.	April, 1909
International Pump	39⅜	+ ⅞	June	8	17,762,500		1	April, 1905
International Pump, pr	85⅝	— ⅛			11,350,000	6 cum	1½ Q.	May, 1909
Lackawanna Steel	32	.....	March	10	34,971,400		.....	.....
Lake Sup. Corp	28	+1¼	Oct.	6	40,000,000		.....	.....
New York Air Brake	84¼	—2¼	June	17	8,012,500	8	2 Q.	Oct., 1907
Niles-Bement-Pond	100	.....	Feb.	3	8,500,000	3	1½ Q.	Mar., 1909
Niles-Bement-Pond, pr	100	.....			2,000,000	6 cum	1½ Q.	Feb., 1909
Otis Elevator Co	47	.....	March	15	6,375,300		1½ S. A.	April, 1909
Otis Elevator Co., pr	96	.....			6,295,000	3 n. c.	1½ Q.	April, 1909
Penn. Steel	50	.....	May	10	10,750,000		.....	.....
Penn. Steel, pr	105	— ¼			16,500,000	7 n. c.	3½ S. A.	May, 1909
Pittsburg Coal Co	11⅝	+1⅛	March	9	28,104,600		.....	Nov., 1906
Pittsburg Coal Co., pr	43¾	+1¾			27,071,800	7 c.	1¾	April, 1905
Pressed Steel Car	38	+1	Feb.	17	12,500,000		3	Aug., 1904
Pressed Steel Car, pr	100	+1			12,500,000	7 n. c.	1¾ Q.	Feb., 1909
Pullman	185	—3	Nov.	10	100,000,000	8	2 Q.	May, 1909
Railway Stl. Spring	39¾	+ ¼	March	4	13,500,000	2	1 S. A.	Oct., 1908
Railway Stl. Spring, pr	99½	.....			13,500,000	7 cum	1¾ Q.	Dec., 1908
Rep. Iron & Steel	24	+1⅜	Oct.	20	27,191,000		.....	.....
Rep. Iron & Steel, pr	77½	+3¼			20,416,900	7 cum	1¾ Q.	April, 1908
Sloss-Sheffield	76	+1	March	10	10,000,000	5	1¼ Q.	Mar., 1909
Sloss-Sheffield, pr	112½	+4½			6,700,000	7 n. c.	1¾ Q.	April, 1909
U. S. Pipe & Fdy	32	+1	June	23	12,500,000	2	¾ Q.	Dec., 1907
U. S. Pipe & Fdy., pr	75	+ ¾			12,500,000	7 n. c.	1¾ Q.	Sept., 1908
U. S. Steel	53¾	+3	April	19	508,302,500	2 n. c.	½ Q.	Mar., 1909
U. S. Steel, pr	114¾	+ ½			360,281,100	7 cum	1¾ Q.	Mar., 1909
U. S. Steel 5s	104	+ ⅛			463,798,000	5	5 A.	.....
Va. Iron, Coal & Coke	61	+1	Sept.	21	9,073,680		.....	.....
Westinghouse Elec	81½	+ ½	June	16	27,173,200	10	2½ Q.	Oct., 1907
Westinghouse Air Brake	108¼	+ ¼	Oct.	5	14,000,000*		2½ Q.	April, 1909

Par value of shares, $100, except those starred (*), $50.

Copper Stocks.

New York.—Amalgamated Copper closed 77⅛, a net gain of 2⅜.

Boston.—Butte Coalition closed 24¼, no change; Calumet & Arizona closed 99½, a net loss of 1; Calumet & Hecla closed 605, no change; North Butte closed 62¾, a net loss of 4¼; Quincy Mining closed 88½, a net gain of ½.

Financial Notes.

The Dominion Iron & Steel Co., Montreal, has voted to pay 10½ per cent dividend on preferred stock May 10, this representing part of the arrears of dividends accumulated on that issue; further announcement is made that the regular semi-annual payments on preferred will be resumed Oct. 1. Subscriptions are being taken at the offices of the Ralston Steel Car Co., Columbus, O., on an issue of $150,000 of 6 per cent preferred stock. The Pullman Co. declared the quarterly dividend of $2 per share, payable May 15.

NEWS FROM MANY INDUSTRIES

New Buyers:—

The Ideal Stove & Range Works, Belleville, Ill., capitalized at $5,000, has been chartered by Adolph Noser, George Krueger and Jacob Wimmer.

David L. Helman, Charles B. Loveless, D. R. Geiger, L. L. Jones and Charles Fillius have chartered the Warren Iron & Steel Co., Warren, O., capitalized at $100,000.

The Temple Foundry & Machine Co., Temple, Tex., has applied for a charter through H. Brockelmeyer, Ed. Winston and B. L. Gillam, of Temple. The capital stock is $10,000.

The Forest City Machine Co., Cleveland, O., capitalized at $25,000, has been incorporated by James H. Griswold, Willis E. White, J. L. Cochran, H. Bailey and James Farmanek.

The Robinson Combination Steel Wrench Co., Gary, Ind., has filed application for a certificate of incorporation with $10,000 capital stock. Willis E. Robinson, Harry H. Clark and Alfred D. Milteer are the incorporators.

The Vacuum Tube Construction Co., 1602 Ashland block, Chicago, has been incorporated to manufacture vacuum tubes and power plants, with a capital of $18,000. Those interested are C. I. Backus, Joseph J. Stoetzel and W. A. Slack.

The Hudson Mineral Co., Little Falls, N. Y., mining and treating ores and minerals, with $50,000 capital stock, has been chartered by George G. Hakes, Ilion, N. Y.; Harry L. Becker and A. M. Mills, Little Falls, N. Y.

The Weber Subterranean Pump Co., New York city, has been incorporated with $50,000 to manufacture pumps and pumping machinery. The incorporators are: Frederick C. Weber, Josiah L. Wertz, J. H. Ballantine, 90 West street, New York city.

William W. Elliott, James N. Elliott and Frank J. Higgins, Jersey City, N. J., are the incorporators of the Elliott Galvanizing Co., Jersey City, chartered for the purpose of galvanizing iron and other metals, with a capital of $125,000.

Articles of incorporation have been filed for the B. M. Martin Brass Works, New York city, founders and workers in brass, copper, iron, bronze, etc., with $10,000 capital, by Frank B. Searles, Albert R. Palmer and Charles F. Kern, all of 68 William street, New York city.

The John Dewes-Gumbs Die Co., Owego, N. Y., has filed application for a charter to manufacture machinery, cutting dies, etc., with a capital of $6,000. Those interested are John Dewes and John Dewes Jr., 175 Grand street; George A. Gumbs, 249 Center street, all of New York city.

The Trenton Engine Co., Trenton, N. J., has been granted a certificate of incorporation, authorizing it to conduct a brass foundry, with $125,000 capital stock. Charles A. Comp, Charles H. English, of Trenton, and William P. Cubberly, Robbinsville, N. J., are the incorporators.

A charter has been granted to the New England Inventions Co. New York city to manufacture machinery, implements and tools, with an authorized capital of $25,000. Those interested are C. Montieth Gilpin, Harry A. Stuart, Hugh C. Murray, No. 68 William street, New York city.

The Ruby Mountain Iron & Furnace Co., St. Louis, Mo., has been granted a charter to do a mining and manufacturing business, with $100,000 capital stock, fully paid. Those interested are: L. J. Matlock, of St. James, Mo.; W. H. Baumann, E. T. Slevin, John A. Ryan and M. H. Levy, St. Louis, Mo.

The John J. Gibson Co., Buffalo, N. Y., has been incorporated to manufacture motors, engines, machines, etc. The incorporators are Joseph N. Gregory, 149 Riley street; E. G. Thompson, 111 West avenue, George Roughead Jr., 2015 Seneca street, all of Buffalo, N. Y. The capital stock is $20,000.

Articles of incorporation have been filed by the Paul Gasparini Foundry, New York city, iron and brass founder, metal worker, etc., with $5,000. Those interested are Paul Gasparini, 967 Columbus avenue, New York city; Raymond L. Rorkl, 112 Sixth avenue, Brooklyn, and Joseph B. Reilly, 176 West Eighty-seventh street, New York city.

The Jersey City Can & Sheet Metal Co., Newark, N. J., mining, smelting and casting, with a capital stock of $25,000, has been incorporated. Those interested are Michael Brenner, 134 Court street; Harry Engelman, 25 West street; Samuel A. Patterson, 17 North Sixth street; Joseph Weschler, 113 Charlton street, all of Newark, N. J.

A charter authorizing it to manufacture iron and steel products, with $25,000 capital stock, has been granted to the Scovil Iron & Steel Co., Jersey City, N. J., which has these incorporators: Percy A. Scovil, 3 Irving place, Summit, N. J.; E. Medley Scovil, 128 West 103d street; William J. Crompton, No. 1 East Forty-first street, both of New York city; Douglas D. T. Story and Anthony Botti, 76 Montgomery street, Jersey City, N. J.

A charter has been granted to the Maritime Engine Co., Ltd., St. John, Neb., through Daniel J. Purdy, James R. Ferguson, Joseph Court, Harold Climo and others of St. John, and John A. Calhoun, of Savannah, Ga. The company has a capital stock of $125,000, and is authorized to construct, rebuild and repair engines, boats and other marine craft, boilers, etc. The company will handle the Strickland-Mowry engine and other patent rights controlled by H. R. McLellan.

New Construction:—

The Southern Wisconsin Foundry Co., Madison, recently installed a 10-ton Northern crane of 50-feet span in its new foundry.

The Gilbert & Bennet Mfg. Co., Georgetown, Conn., will commence work shortly on a 120-foot addition to the north side of its No. 1 wire mill.

Jonah & George, Merrimac, Mass., are adding improvements to their brass foundry and will soon occupy the new shop just being completed.

The Marion Steam Shovel Co., Marion, O., is having plans prepared for several additions to its operating plant, as well as an office building.

O. S. Platt & Co., of Richmond, Ind., through an agreement with the Commercial club of Munday, Tex., have begun the construction of a machine shop at Munday.

The American Brake Shoe & Foundry Co. is taking figures on a one-story brick and steel addition to its foundry at Chicago Heights, Ill., 110 x 500 feet.

The Reading Iron Co., Reading, Pa., has let the contract for the erection of a one-story boiler shop 75 x 160 feet, of brick, iron and concrete, to cost $10,000.

The co-operative foundry of the Quincy Casting Co., Quincy, Ill., is well under way, and every endeavor is being made to complete the building as soon as possible.

The Huron Steel & Iron Co., Newark, O., has found its business increasing so rapidly that it has decided to install two more open-hearth furnaces

the coming summer, thus doubling its capacity and making a total of four open-hearth furnaces in the plant.

The Newport Rolling Mill Co., Newport, Ky., is making extensive improvements to its plant, and among other equipment is installing a large electric crane.

The Marcus Bridge & Iron Co., Peoria, Ill., has under way plans for the construction of a foundry on a portion of a lot leased from the city school board.

Joseph Cody & Sons, Peoria, Ill., who recently secured a 25-year lease on a piece of school board property, announce that they will erect a steel fireproof boiler shop 80 x 200 feet.

The Western Foundry & Machine Co., Ogden City, Utah, has begun the construction of a new machine shop, one story, brick construction, 50 x 66 feet. The machinery will be motor driven.

The Inland Steel Casting Co., Terre Haute, Ind., which was recently incorporated with a capital of $50,000, has announced that it will build a foundry 100 x 250 feet, near the Terre Haute Malleable Iron Works.

The construction of the proposed $2,500,000 plant of the Inter Ocean Steel Co., at Chicago Heights, Ill., was begun last week. The plant will cover about 80 acres, the buildings to be of steel and concrete construction.

The Brown Steel Barrel Co., Toledo, O., has awarded the contract for a building at Earl street and the Lake Shore tracks, 40 x 200 feet, in which it will manufacture a steel barrel along original lines.

The Temple Iron Works, Temple, Tex., advises that it will rebuild its plant recently damaged by fire, erecting a machine shop 24 x 60 feet, and a repair shop 20 x 30 feet, at an estimated cost of $1,200.

O'Brien & Cooley, whose plant is at present located at Wichita, Kans., have purchased a site of 15 acres at Fort Worth, Tex., and will erect a mill for the manufacture of tubular iron poles and shafts.

The Driggs-Seabury Ordnance Corporation, Sharon, Pa., has awarded to William B. Scaife & Sons Co., Pittsburg, the contract for the structural steel work for a new building at Sharon, Pa., an addition to the present plant.

The Allen Mfg. Co., Nashville, Tenn., is planning a substantial addition to its foundry to be completed possibly by July 1. The company manufactures steel ranges, but in the addition it is proposed to turn out a special pattern of cast cooking stoves.

Announcement is made that the American Radiator Co. is planning to build a thermal research laboratory in Buffalo, at an estimated expenditure of probably $175,000. The laboratory will be built at the Pierce plant, Elmwood avenue and the New York Central tracks.

The Independent Mining Co., which was recently incorporated by Thomas J. Deane, Rome, Ga., and others, is planning to develop 200 acres of iron ore land near Cedartown, Ga., and will install mining equipment, including log washers, etc. Its offices and mines are located at Cedartown.

The Oil City Boiler Works, Oil City, Pa., has begun dismantling the old shops in preparation for building its proposed new plant. The new boiler department will have twice the capacity of the old. It is expected that the new plant will be complete and running by the middle of June.

The Detroit Bridge & Steel Co., Detroit, Mich., which recently purchased 7½ acres of land in River Rouge, along the Michigan Central tracks, is having plans drawn for a plant, upon the construction of which work will be begun early in the summer. Part of the machinery has already been placed on the ground.

The La Crosse Hay Tool Co. has closed for the purchase of a 15-acre tract at Chicago Heights. The site is located north of Fourteenth street and west of the Morden Frog & Crossing Co. plant. The buildings to be built include one three-story 80 x 500 feet, one 80 x 500 feet, one story, and several smaller buildings, including an office. It is expected that the plant, when running full, will employ 400 men.

The directors of the new Joliet Bridge & Iron Co., Joliet, Ill., have authorized the officials to borrow $75,000 with which to complete the erection of the shops now in course of construction. The foundations have been almost completed, and the structural material is being finished in the shops by the company's own employes. The plant is to be ready for occupancy by Sept. 1.

The Manitoba Rolling Mills Co., Winnipeg, Man., is preparing plans for extensions to its plant which will cost approximately $200,000. So far, the plans provide for a mill with four furnaces and equipment of trains of 9 and 16-inch rolls. When completed, it will occupy ten acres of ground, upon over half of which will be placed the mill buildings, warehouses, etc. It is intended to have the mill operating by next fall.

The Valley City Machine Works, Grand Rapids, Mich., has purchased a plot of ground adjoining its present plant, to which its building will be extended 33 feet, two stories, brick, to replace the wooden building on the side, and another addition, 50 x 33 feet, two stories, will be built extending nearly to the Fulton street line. The company makes a specialty of grinding and wood working machinery, as well as water motors for washing machines.

The Virginia Bridge & Steel Works, Roanoke, Va., has begun the erection of a structural steel plant at Atlanta, Ga., at an estimated cost of $50,000. The plant will be located on Whitehall street, near Stewart avenue. Several sub-contracts have been let to Atlanta firms. The Atlanta plant will be in charge of these officers: District manager, Jules W. Leroux; resident engineer, L. R. Muhs; chief clerk, R. H. Kelly. Several contracts have been closed for construtions by the Atlanta branch, which itself will be in operation in about 60 days.

The Philadelphia Roll & Machine Co., corner of Twenty-third street and Washington avenue, Philadelphia, has just closed contracts for the erection of a new roll and machine shop. The building runs toward Twenty-fourth street at right angles to the foundry. The new shop will be 60 x 120 feet, with a lean-to erected north and south. The roll lathes and other machines will be served by a 30-ton overhead electric traveling crane. Four additional large roll lathes now under construction, will be erected. With the additional facilities and new building, the company will increase its output very considerably. It will then have a separate foundry 50 x 328 feet, served by two overhead electric cranes and with the three large air furnaces and improvements under construction, the company will be enabled to increase further its business of chilled sand rolls, and charcoal air furnace iron castings, for which it has a large demand.

General Industrial:—

The Ohio Forge Co., of Cleveland, has increased its capital stock from $10,000 to $100,000.

The Dimmick Pipe Co., Birmingham, Ala., has established an office at 217 LaSalle street, Chicago.

The Ohio Seamless Tube Co. on April 15 began operating its new plant at Shelby, O., which was built in place

of the Steel Corporation plant burned last June. The new plant is planned to produce 1,000 tons of steel tubes each month.

The Joliet Bridge & Iron Co., Joliet, Ill., has increased the number of its directors from three to five.

The Columbia Tool Steel Co., Chicago, has decided to increase the number of its directors from five to seven.

The Garrett Machine Works, Garrett, Ind., has filed notice of increase of its capital stock from $15,000 to $30,000.

The Monarch Foundry Co., Detroit, has increased its capital stock from $15,000 to $25,000 to care for increased business.

F. C. Underwood and O. L. Hughes, of Monticello, Fla., have purchased the foundry and machine shops of the Quitman Mfg. Co., Quitman, Ga., and will remove their Monticello plant to Quitman.

The Fairbury Iron & Windmill Works, Fairbury, Neb., has been bought by the Goodrich Bros., bankers, of Fairbury, at a receiver's sale, for $23,000. As soon as the sale is confirmed by the court, it is the intention to re-open the plant.

Benjamin Howe has purchased the plant of the Howe Mfg. Co., Louisville, Ky., for the purpose of establishing a brass foundry. The property includes two acres of land, a three-story building 65 by 300 feet, and several smaller buildings.

The Carnegie Steel Co. has added to the 1,550-horsepower Crocker-Wheeler form W motors in its Duquesne plant by the purchase of three more motors of the same type, which are especially designed for rolling mill work, aggregating 225 horsepower.

The Cambria Steel Co. has bought 800 building lots in the town of Bon Air, above Franklin, near Johnstown, Pa., upon a portion of which it is said projected extensions of the Franklin plant, which were decided upon several years ago, will be made.

The Finkbeiner-Turney Co., Freeport, Ill., which was recently incorporated by President J. G. Finkbeiner and Vice President and Treasurer F. L. Turney, has been organized to handle the entire output of gasoline engines manufactured by the Western Malleable & Gray Iron Mfg. Co., Port Washington, Minn.

The Capell Fan & Engineering Co., Monongahela, Pa., advises with reference to plans for replacing the plant recently damaged by fire that it has purchased the shops of the Black Diamond Engineering Co., in Monongahela, and will rebuild some portions of it. It will further enlarge the plant there as trade improves.

The Gainesville Machine & Boiler Works, Gainesville, Tex., advises that it has purchased an old established repair business as well as a stock of machinery supplies. The company does not propose improvement in equipment until prospects are better digested. However, it is adding to the business of the boiler repair departments, which will be the only addition it will make for at least one year.

According to a superior court order, the plant of the National Steel Foundry Co., Fair Haven, Conn., will be sold within two weeks, unless the National Steel & Wire Co.'s receivers raise $26,000 with which to pay creditors. With this amount to be raised, creditors of the foundry company will receive 40 per cent in dividends on their claims in addition to 35 per cent which they have already received.

The Montana Bridge & Iron Co., Livingston, Mont., advises through A. H. Allen, president and general manager, that at the present time it is operating by buying material from the east, and that it intends to build a plant within the next two or three years. For some years, Mr. Allen has been building bridges and like classes of steel work in Montana, and has formed the company for the purpose of developing the growing business in that section of the country.

The Milled Screw & Machine Co., Sayre, Pa., whose incorporation was recently noted, advises that it was organized for the purpose of manufacturing threading and milling machines, lead screws and other screws requiring extreme accuracy. In this machine, the cutter is mounted on a swivel head, and the blanks to be threaded are secured in the chuck at the end of a large lead screw mounted directly from the foot of the machine, and the lead screw is driven by two worms, a worm gear producing longitudinal and circular motion through a split nut, and threads of different pitch may be cut by an extremely simple combination of change gears. The company is occupying an existing plant in Sayre, and has ordered all the machinery and equipment required and expects to be in operation the latter part of April. The officers of the company are: President, W. T. Goodnow; treasurer, C. C. West, and secretary, L. E. Kinsman, all of whom are connected with the Cayuta Mfg. Co., and the Sayre Stamping Co., both of Sayre, and the business will be under the same general management. The mechanical department will be under the direction of James Bower, patentee of the machines, and C. E. Loetzer, both of whom have wide experience in the manufacture and design of machine tools.

Trade Notes:—

Announcement is made of the withdrawal of John Helmuth from the former Helmuth Co., and his association with Percy J. Murley under the style of John Helmuth & Co., iron and steel, Hudson Terminal building, New York city.

James Bennie & Sons, proprietors of Clyde Engine Works, at Cardonald, near Glasgow, Great Britain, makers of heavy machine tools for ship yards, structural iron works, boiler shops, etc., etc., have concluded a license with the Hanna Engineering Works of Chicago, Ill., for manufacturing the Hanna type pneumatic riveter in Great Britain.

The Fred M. Prescott Steam Pump Co., Milwaukee, announces that it has discontinued quoting on everything except "trade machines," on which it will quote any one who asks, but will tell dealers and middlemen of all kinds that even on these it cannot protect the price to them either as against others or itself. It further announces that because of constant application for sales agency arrangements and requests from jobbers, dealers, manufacturers' agents, etc., this announcement has been made in order to tell all prospective purchasers that the company's real interest lies entirely with the users.

TRADE PUBLICATIONS.

PATTERN SHOP AND FOUNDRY SUPPLIES—The Cleveland Galvanizing Works Co., Cleveland, in its bulletin No. D-9 lists and describes a line of brass and white metal letters and figures, besides foundry rapping plates, lifting screws and dowels, brass name plates, stamping plates for cement, steel letters and figures, etc.

ENGINES—The American Well Works Co., Aurora, Ill., has issued a folder illustrating and describing some of its line of vertical and portable engines, drilling machines, portable gasoline engines, air compressors and centrifugal pumps, the latter in both the vertical and horizontal types and single and multiple stage.

JACKS—The Duff Mfg. Co., Pittsburg, is distributing a catalog of the Duff-Bethlehem forged steel hydraulic jacks described in THE IRON TRADE REVIEW of March 25. The catalog illustrates a number of different designs of jacks for a variety of purposes and gives full detailed description of their construction, together with complete lists of types and capacities with dimensions.

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AVOID ALL TROUBLE WITH YOUR LININGS

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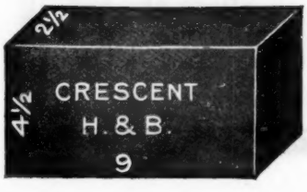

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WARNER

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WATTS
BRISTOL
MAX MEADOWS
DORA
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RADFORD

NORTHERN
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RED RIVER FURNACE

To Foundrymen Everywhere:

In 1860, one-quarter of the pig iron tonnage produced in the United States was made in Montgomery and Stewart counties, Tennessee, in small cold-blast hill-side charcoal furnaces. From 1860 to 1864, cannon were cast at some of the furnaces for the Confederate government. For years after the war, part of this iron was puddled and used in the manufacture of Tennessee charcoal boiler plate. Nothing has ever surpassed it for high quality. Only one of these old stacks is still operating today—the Dover furnace at Bear Springs. Most of its output is used in the manufacture of chilled cast iron rolls; and the fact that this iron is always sold up a year in advance is a tribute to its quality. The scarcity of wood for making charcoal caused the abandonment of the other furnace operations of the district. The native brown Hematite ores were used.

In 1892, Red River furnace was built to utilize these ores for the manufacture of foundry iron, with coke for fuel. The quality of Red River was soon established, and its Silicon grades, especially, possessed the virtue of not only softening the casting, but giving smoothness, density and cleanliness. Its success has been so satisfactory that the furnace is operated entirely upon High Silicon grades, from 4 to 12 per cent. To those who have not used it, we recommend trial of a sample car, which any of our offices will furnish promptly.

Respectfully,

H. L. Williams

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LAKE SUPERIOR

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NORTHERN
SOUTHERN
VIRGINIA

STANDARD BESSEMER

ACID BESSEMER

LOW PHOSPHORUS

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NEW RIVER
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CHICAGO, The Rookery.
ST. LOUIS, Pierce Bldg.
CINCINNATI, First Nat'l Bank Bldg.
PITTSBURG, German Nat'l Bank.
NEW YORK, Hudson Terminal Bldg.
BOSTON, 126 State Street.
PHILADELPHIA, Harrison Bldg.
BIRMINGHAM, Brown-Marx Bldg.

TENNESSEE COAL, IRON & RAILROAD COMPANY

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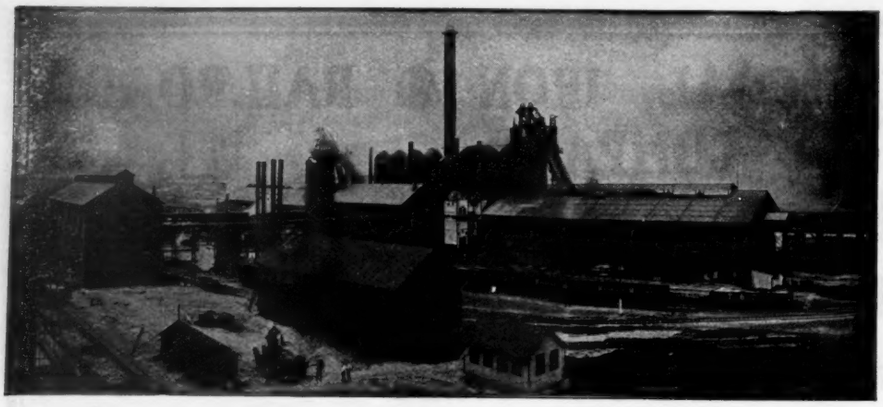

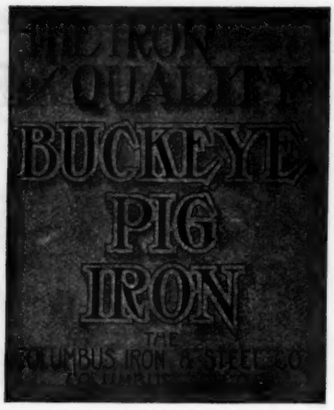

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(1) No. 2 Brown & Sharpe Universal
(1) "A" Yankee Drill Grinder
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(1) No. 3 Diamond, 32 x 1 1-4 spindle
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(1) No. 3 Brown & Sharpe Universal
(1) No. 3 Cincinnati, all feeds, plain
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(1) 42 in. x 24 in. x 8 ft. Ingersoll, slab

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(1) 10 in. Bush crank
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(1) 36 in. x 36 in. x 10 ft. Gray, 2 heads
(1) 42 in. x 36 in. x 14 ft. Cincinnati, 2 heads

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(1) D75 Ferracute
(1) No. 62 Toledo
(1) No. 8 Greenerd arbor

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(1) 3 1-2 in. Burr
(1) 6 in. Cochrane-Bly
(1) 6 in Newton
(1) Miller-Falls Hack
(1) 26 in. Crescent band

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(1) 14 in Lodge & Davis
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Second Hand Machinery

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Any advertisement appearing in the liner columns of THE IRON TRADE REVIEW, will be given one insertion free of charge in PENTON'S LIST, and when such advertisement is one that would be of interest to the foundry trade, it will likewise be given one insertion free of charge in THE FOUNDRY.

POSITIONS VACANT.

WANTED, A MAN EXPERIENCED IN operating a cupola and blowing a converter. Reference required. Address with all particulars, 805 E. 70th St., Cleveland, O.

FOUNDRY FOREMEN AND OTHERS wanted to increase their earning capacity 25 to 50 per cent by taking a course in the mixing of irons with the Milwaukee Correspondence Schools, Goldsmith Bldg., Milwaukee, Wis.

A MAN WANTED IN EVERY MACHINE shop and foundry to represent me, selling a $1.00 article on a 75 per cent commission. It sells like "hot cakes." For further information and free samples, address S. C. Johnson, 1020 Prudential building, Atlanta, Ga. p.

POSITIONS WANTED

POSITION WANTED BY FIRST-CLASS foundry foreman, held present position for 10 years, would like a change; 20 years' experience as foreman on all classes of light and heavy engine work, and mining machinery of all kinds. Good mixer and melter of both iron and brass. Will take charge of pattern shop in connection with foundry if so desired. Best of references as to ability; an up-to-date hustler, sober and reliable; can produce results; shop in middle west or coast preferred. Address Box 61, PENTON'S LIST, Cleveland, Ohio. p.

WANTED POSITION AS FOREMAN IN foundry, making light and medium weight gray iron castings—21 years experience in foundry, 12 years as foreman in shops making light castings. Up-to-date in cupola practice, mixing and melting iron, molding machines and handling help. Open shop preferred—can furnish references. Address Box 77 Penton's List, Cleveland, O. p.

BY SUPERINTENDENT ON ORNAMENTal iron work for buildings. Has had large experience in the shop and at the erection. Knows how to handle help, hustle and systematize work to produce best results. Willing to start on a reasonable salary. Address "Anderson," care THE IRON TRADE REVIEW, 90 West St., New York, N. Y.

POSITION WANTED BY FOREMAN PATternmaker, 20 years' experience on all classes of work, large work especially. Familiar with molding machines and metal patterns. Capable of taking charge of foundry; 8 years superintendent of pattern department and foundry. Steady, sober and reliable, practical mechanic in both trades. Best of references. Address Box 80, PENTON'S LIST, Cleveland, O. p.

POSITION WANTED BY A MARRIED man 35 years of age, practical molder and machinist—have held executive position as both—thoroughly up-to-date in all branches and capable of taking entire charge of shop. Address Box 74 PENTON'S LIST, Cleveland, O. p.

BY YOUNG MARRIED MAN, FORMERly purchasing agent for large railway equipment company, especially experienced in buying iron and steel and their products, also other material used in manufacturing railway equipment. Thoroughly familiar with trade. Can systematize detail work. Address Box 437, THE IRON TRADE REVIEW, Cleveland, O.

AS FOUNDRY FOREMAN BY YOUNG man. Thorough knowledge of economic production of light and medium weight castings. Can handle men to best advantage, understand mixing iron by analysis or fracture. Acquainted with cost system in foundry. Can furnish references of ability. Address Box 443, THE IRON TRADE REVIEW, Cleveland, O.

POSITION WANTED AS SUPERINTENDent of malleable plant—can build furnaces, annealing ovens and core ovens and operate same successfully. Have had 14 years experience as foreman and superintendent of malleable and agricultural grey iron shops. Can give the best of references. Address Box 75 PENTON'S LIST, Cleveland, O. p.

POSITION WANTED BY AN EXPERT molding machine and metal pattern maker, as foreman in molding machine shop, or else taking care of machines in a large foundry. I have 22 years of experience to back me (all with one firm). Address Box 81, PENTON'S LIST, Cleveland, O. p.

WANTED BY AN UP-TO-DATE ENERgetic young foundryman, position as superintendent or foreman of plant, where a hustler is needed. Heavy machinery or engine work preferred. Can produce results with minimum cost. Good handler of men, expert on labor saving devices and mix by analysis. References. Address Box 82, PENTON'S LIST, Cleveland, O. p.

BY TECHNICAL MAN EXPERIENCED in all branches of the small converter business. Able to install plant and take full charge. Correspondence invited with parties contemplating installation. Address Box 456, THE IRON TRADE REVIEW, Cleveland, O.

POSITION WANTED BY FOUNDRY foreman. Can take care of any kind of work. Married and sober. Would like to put a little money in a small foundry. Address Box 78, PENTON'S LIST, Cleveland, O. p.

AS MANAGER OR SUPERINTENDENT of gray iron foundry. Up to date in modern practice, mixtures, molding machines and economic appliances. Address Box 454, THE IRON TRADE REVIEW, Cleveland, O.

POSITION WANTED BY MACHINE patternmaker, age 36, married, sober and steady; 15 years' experience, past three years assistant foreman in large plant in Philadelphia. Competent in handling men and drafting—willing to work. A-1 references as to character and ability. Eastern Pennsylvania preferred. Address Box 83, PENTON'S LIST, Cleveland, O. p.

POSITION WANTED BY FOUNDRY foreman, one accustomed to light and heavy gray iron castings. Some experience with molding machines. Understands the running of cupolas, mixing iron—can handle men to good advantage. Strictly temperate and steady, and can give good references. Address Box 84, FENTON'S LIST, Cleveland, O. p.

POSITION DESIRED AS SUPERINtendent or assistant superintendent of farm implement concern by practical, wide-awake married man 35 years of age—expert in designing and manufacturing farm implements—draftsman, patternmaker and foundryman—four years with the International Harvester Co., 15 years with other important farm implement concerns. References unquestionable. Address Box 85, PENTON'S LIST, Cleveland, Ohio. p.

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AN UP-TO-DATE FOUNDRYMAN WISHes to correspond with firm considering the installation of steel converter—will furnish list of the cost of equipment and installation and the manufacture of steel, with view of taking stock. Address Box 79 Penton's List, Cleveland, O. p.

AN UP-TO-DATE FOUNDRY AND MAchine shop for sale, completely equipped, in daily operation with profit. Located in one of the best towns in Oklahoma, with excellent shipping facilities. Best of reasons for selling. Information cheerfully furnished. Address Business Opportunity, care PENTON'S LIST, Cleveland, O. p.

EXCELLENT WATER POWER AND FACtory site for rent or sale. Good town of 1500. Cheap help plentiful. Address Merritt Mfg. Co., Constantine, Mich. p.

WANTED, PROPOSITION BY A MALleable iron foundry on complete journal box equipment, including molding machines, patterns and green sand core boxes. Address Box 453, THE IRON TRADE REVIEW, Cleveland, Ohio.

WANTED BY THE ENSLEY MACHINE & Foundry Co. a good specialty in gray iron, excellent position to reach southern trade. Ensley, Alabama. p.

FOUNDRIES WISHING A SPECIALTY in which there are large profits, write us at once. Address the Ashland Iron Works Co., Ashland, O. p.

ENGINE FOR SALE.

FOR SALE—ONE 23 X 60 SINGLE CYLinder, double acting, Harris Corliss, pendulum ball governor, with section cast iron fly wheel, 18 ft. x 38". Good order, requirements changed, electric power being used. Address Almond Mfg. Co., Ashburnham, Mass. p.

FOR SALE—ONE 25 TO 30 H. P. GAS or gasolene engine, in fine condition, with friction clutch pulley—also muffler and gas reservoir—would take a 10 or 12 H. P. gasolene engine in exchange if up-to-date. A. W. Grandon, North Fairfield, O. p.

FOR SALE—250 H. P. CORLISS ENGINE. Address J. C. 249 Elm St., Buffalo, N. Y. p.

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FOR SALE—MISCELLANEOUS.

BOILER FEED WATER PURIFIER FOR sale. Sole rights of patent just granted by the U. S. Mechanical device for the prevention of scale in steam boilers, which saves from 15 to 50 per cent of fuel, together with many other advantages, and which should become universally used, and be a great money maker. Simple, durable and inexpensive. Blue prints and all information furnished. Address "Inventor," 718 Pennsylvania building, Philadelphia, Pa.

ROD MILL FOR SALE. TWO HIGH duty engines, Porter Allen and Filer & Stowell, a number of pumps, Whiting crane, steam pipes, rope sheaves, etc. This material is in good second-hand condition. Will sell at a bargain the entire or separate. We are headquarters for relaying rails. The Isaac Joseph Iron Co., of Chicago, 1247 First Natl. Bank Bldg, Chicago, Ill. p.

PATENT FOR SALE—TOOL FOR VENTing the cores of grate bar moulds; will make 10 holes through the core at one stroke, in an instant—only tool of its kind ever patented—for price and particulars write A. C. Pearce, Baton Rouge, La. p.

AGENCY WANTED.

PACIFIC COAST AGENCY WANTED for iron and steel specialties, also light structural shapes. Cold rolled steel and merchant bars. Address Girvin & Eyre, San Francisco, Cal. p.

SCRAP WANTED.

TAKE NOTICE. WE ARE BUYERS OF all grades of scrap metals, such as scrap copper, brass, lead, babbitt metals, factory metal skimmings, drosses, metal clippings, spelter, etc. Advise quality and quantity you have on hand to offer and we will name best prices f. o. b. your city. H. Kander & Co., Bowling Green, Ohio.

WANTED, MISCELLANEOUS.

WANTED SECOND-HAND MACHINERY. One 72-inch Boring and Turning Mill. One 48-inch Geared Head Engine Lathe, both must be good make and in good condition. Send cuts with full description of machine and price with your reply. The Champion Iron Co., Kenton, O. p.

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SIMPLE COMPOUND & COMPOUND CONDENSING ELEVATOR & WATER WORKS PUMPING ENGINES

For Sale.

1—Horizontal Right Hand Center Crank Slide Valve Steam Engine. Built by the Erie Engine Works, Erie, Pa. 14" x 16" steam cylinder, 4" steam pipe, 5" exhaust pipe, Judson governor, 5¼" dia. shaft. Belt wheel 4' 0" diameter, 16½" crown face. Belt fly wheel 5' 0" diameter, 18" crown face. Floor space 10' 9" x 6' 4". (Engine is in good running condition and will deliver about 60 H. P. with 100 pounds boiler pressure.)

1—Detroit Steam Separator.

1—Six Wheel Saddle Tank Switching Locomotive, 4' 8½" gauge, 17" x 24" steam cylinder. Weight, 103,000 lbs. Capacity of saddle tank, 1,300 gallons. Tractive power, 23,200 lbs. Diameter of drivers, 46". Fitted with American cam driven brakes. Boiler 50" diameter. 150 2" tubes 13' 6" long. Boiler pressure carried 150 lbs. Two No. 7 Rue injectors. Wheel base, 9' 10"; fire box in good condition—no patches—inside dimensions, 34½" wide, 53¼" long, 59" high, plate 1" and 2" thick. Tires practically new.

1—Skinner Automatic Center Crank Horizontal Steam Engine No. 6222. Built by the Skinner Engine Co., Erie, Pa. Diameter of cylinder, 14"; stroke, 15"; revolutions per minute, 210; horsepower, 100, when using initial steam pressure of 90 lbs. Has balanced slide valves, automatic lubrication. Steam pipe, 4" dia. Exhaust pipe, 6" dia. Belt wheel, 5' 6" dia., 14¼" face, and governor wheel 5' 0" dia., 10" face. Floor space 10' 3" x 5' 6", from floor to center of shaft 35". Engine has cast iron sub-base and is in first-class condition.

1—Armington & Sims Automatic Horizontal Steam Engine. Dia. of cylinder 15½". Stroke 15". Rev. per minute, 210. Center crank cast iron, sub-base 5" dia. Steam pipe 6". Exhaust pipe. Belt wheel 42" diameter, 18½" face. Governor wheel 5' 6" diameter, 12" face. Balanced piston valve. Floor space 12' 0" x 6' 6". From floor to center of shaft, 36". In first-class condition. Engine is 100 horsepower.

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¶ Thick, pasty slag spells dull iron and dirty castings all over. Fluor spar, with its high percentage of calcium fluoride, makes an extremely fluid slag and therein are its great benefits.

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